Early Modern European Shipwrecks

Architectural Signatures

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14th to 17th Centuries

NADL

ShipLAB Report 28

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Marie Curie gran
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Introduction

Filipe Castro

This volume is intended as a working document that we expect will serve two functions. The first is to develop a base for cultural studies assessing the diversity of shipbuilding philosophies and construction solutions in early modern Europe. The most important reason for the development of the present catalogue is the PhD research of A&M student Charles Bendig, whose dissertation focuses on an analysis of the construction traits that are particular to the Iberian ships of the early modern period. The second is to assert the need to standardize the recording of shipwrecks in ways that will make comparative studies easier and, hopefully, more participated (Castro et al. 2018).

As we have written elsewhere (Castro et al. 2018), in the 1980s Dell Upton (1983) proposed that vernacular architecture be studied from four interdisciplinary viewpoints: an object-oriented one, concerned with the age, shape, construction and adaptations of the buildings over time, a social-oriented viewpoint, looking at buildings as "a part of everyday existence and (…) as evidence for aspects of the past that can be known imperfectly from other kinds of evidence," a culture-oriented viewpoint, looking at buildings as products of a culture, and a symbolic-oriented approach, dealing with symbolic aspects of architectural and structural solutions. These four approaches have been used in studies of ships and shipwrecks since the early days of maritime archaeology. Ships have been studied as objects by many authors, such as George Bass and Fred van Doornink (1982), or J. Richard Steffy (1993), as social products (Adams 2013 or Erikson 2014), as cultural products – made of a collection of *memes,* understood as units of cultural ideas that can be transmitted and modified – which Ole Crumlin-Pedersen (1991) called cultural fingerprints, and Eric Rieth (1998) architectural signatures, and as objects with symbolic meanings. This last topic has deserved perhaps less specific treatment, although nautical and maritime archaeology and literature are full of references to symbolic aspects of ships, such as the decorations of warships through time, the eyes painted on the bows of Mediterranean ships, or the names and nicknames of ships and boats.

The study of ships as objects is perhaps the basis of the four viewpoints' approach mentioned above. To understand ships we need to know when they were built, how they were conceived, built, and improved, how quality was perceived, where did knowledge reside, and how was it transferred. In view of the growing number of shipwrecks published since 2001 we decided to revisit Oertling's Iberian construction traits' list (1989, 2001, 2005), which resulted from Crumlin-Pedersen and Eric Rieth's ideas.

In the late 1980s a team of students of the Nautical Archaeology Program at Texas A&M University supported by the Institute of Nautical Archaeology, developed a comprehensive program to study the ships of the Iberian discoveries. Their work generated a number of seminal studies which included Thomas Oertling's list characterizing the Iberian ships of discovery. Oertling proposed a list of twelve characteristics based on the available data at the time of his last publication:

1. Pre-assembled central frames, dove-tailed mortices, transverse treenails;
2. Planking nails: treenails per plank/frame join at midship;
3. Sternpost scarphed to upper arm of keel knee;
4. Single stern deadwood knee;
5. Y-timbers tabbed to deadwood;
6. Keelson notched over floor timbers;
7. Mast step is expanded part of the keelson;
8. Butresses and stringers;
9. Ceiling and filler planks;
10. Rigging chain assemblies;
11. Flat transom, sternpost proud of transom;
12. Carved garboard.

Since then a significant number of shipwrecks has been published, and we feel that the present compilation is bringing a better insight into the shipbuilding world of the European expansion into the Atlantic and beyond.

After Oertling's 2001 paper, several incremental changes were published, completing or slightly changing his analysis. For instance, the Rya A, B&W 7 shipwreck, and the Greesham shipwrecks evidenced the use of dovetail scarves in northern Europe. Similarly, an ongoing study of rigging blocks for this period seems to suggest that their shapes vary independently of the ship's provenience.

In 2017 Arnaud Cazenave de la Roche produced a new important breakthrough in taxonomic studies. He pointed out that the shape of the iron fastenings on this period was diagnostic, and that square and round, or mixed square and round shanks could be useful to trace the origin of a ship (Cazenave da le Roche 2017).

We believe that only an exhaustive catalogue will allow us to form a better perspective of the gestures and practices of European shipwrights, from the Baltic to the Eastern Mediterranean coats, and the present catalogue is a collaborative effort in that direction.

The present list is incomplete and lacks coherence. At this stage I felt that we should assemble as many published shipwreck hull remains as we could find, and that a selection must be done later, as the sample grows larger.

We welcome all cooperation from all colleagues in the field and we will share this catalogue online, as a complement of the Texas A&M ShipLAB Early Modern Ships Project (www.modernshipwrecks.com).

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Castro, F., Bendig, C., Bérubé, M., Borrero, R., Budsberg, N., Dostal, C., Monteiro, A., Smith, C., Torres, R., and Yamafune, K., 2018. “Recording, Publishing, and Reconstructing Wooden Shipwrecks” *Journal of Maritime Archaeology*, 13.1: 55-66.

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Oertling, T., 1989. The few remaining clues. In *Underwater Archaeology Proceedings for the Society for Historical Archaeology Conference*, Arnold III, J. Barto, ed. Society for Historical Archaeology, Baltimore MD :100-103.

Oertling, T., 2001. The Concept of the Atlantic Vessel. *Proceedings of the International Symposium ‘Archaeology of Medieval and Modern Ships of Iberian-Atlantic Tradition*’. Francisco Alves ed., IPA, Lisbon :213-228.

Oertling, T., 2005. Characteristics of Fifteenth- and Sixteenth-Century Iberian Ships. The Philosophy of Shipbuilding, Frederick M. Hocker and Cheryl A. Ward eds. Texas A&M University Press, College Station TX :129-136.

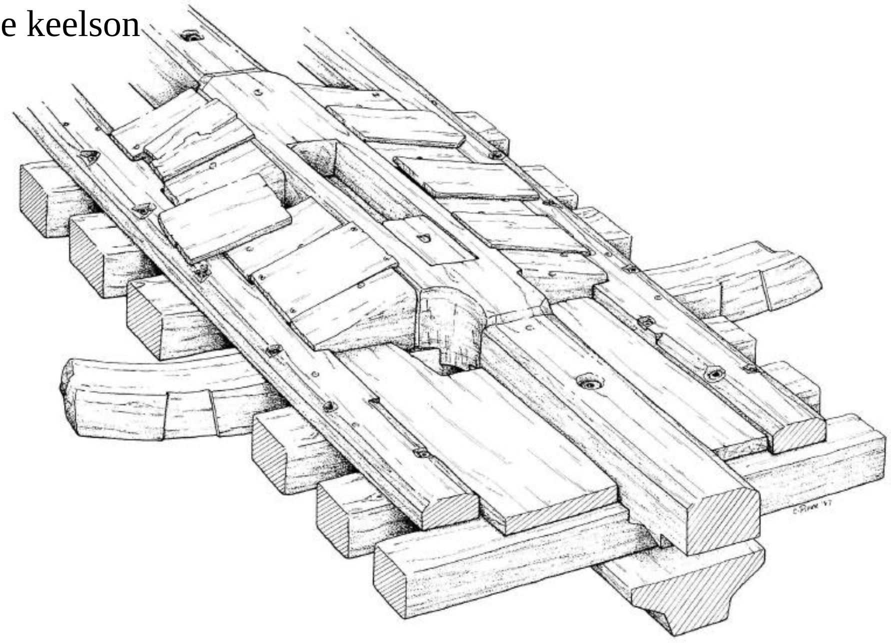
Rieth, E., 1998. “Construction navale à Franc-Bord en Méditerranée et Atlantique (XVIe-XVIIe)” et “Signatures Architecturales»: une première approche archéologique,” in Méditerranée Antique. Pêche, navigation, commerce, Ed. Éric Rieth. [S. l.]: Éditions du CTHS, pp. 177-187.

Steffy, J., 1994. *Wooden Ship Building and the Interpretation of Shipwrecks*. College Station: Texas A&M University Press.

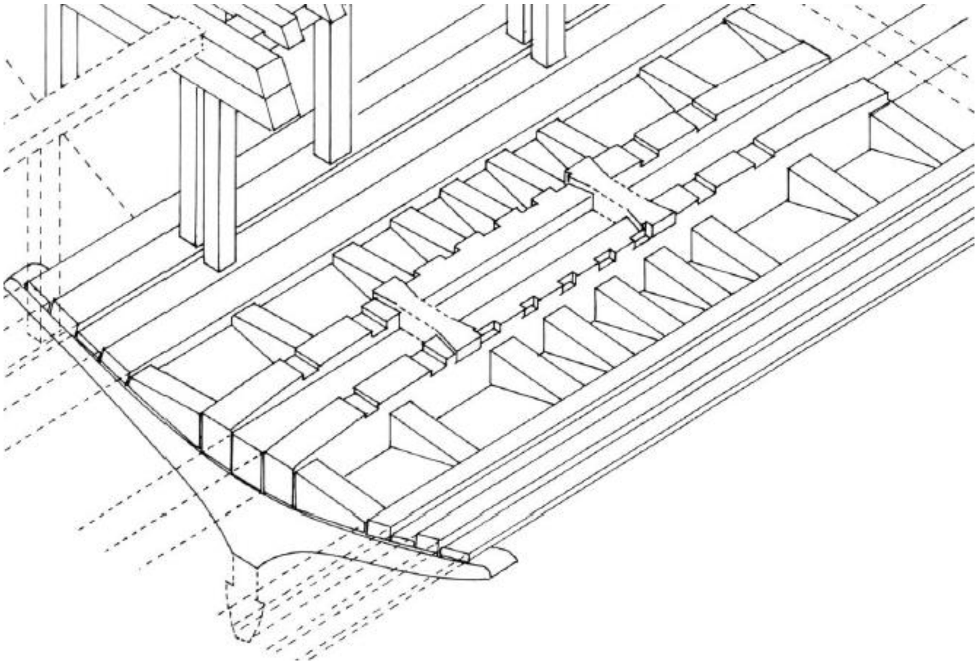
Construction Traits Considered

1. Maststep:

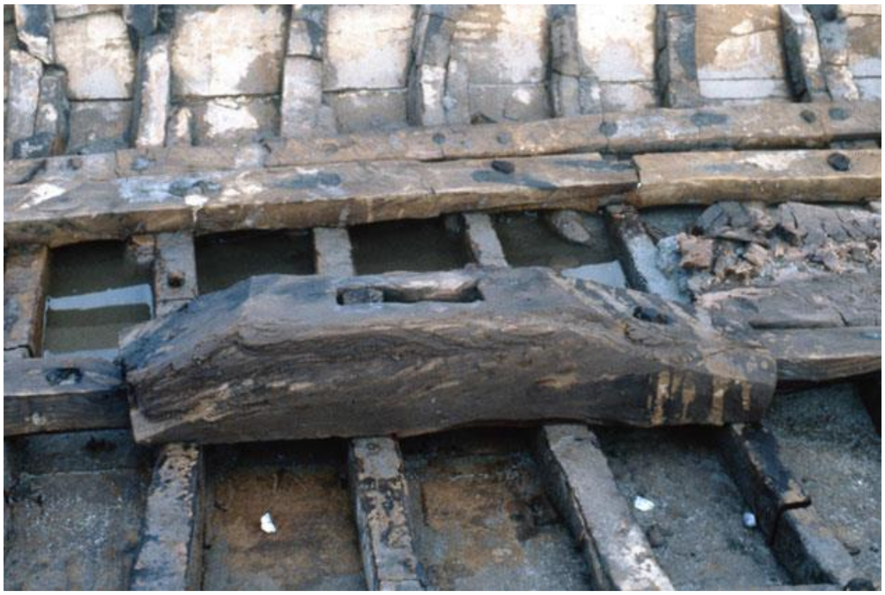
a. Expanded portion of the keelson



b. Mediterranean

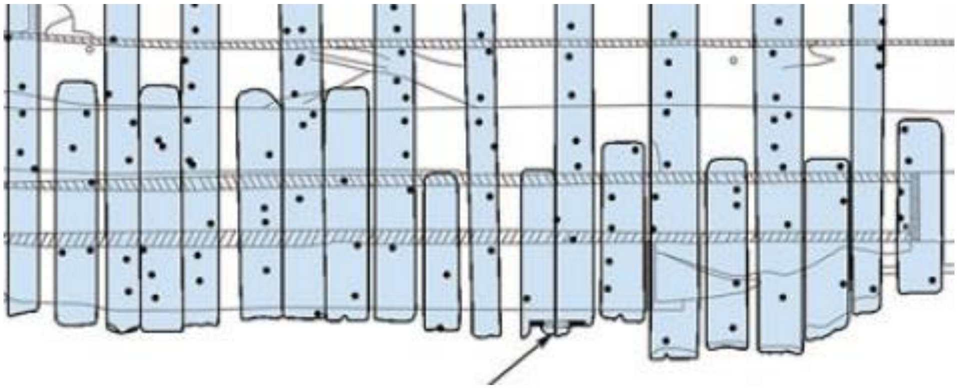


c. Wood block

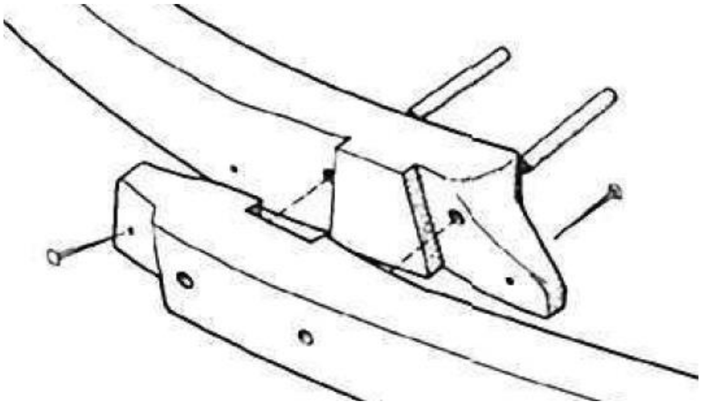


2. Floor/Futtock connection:

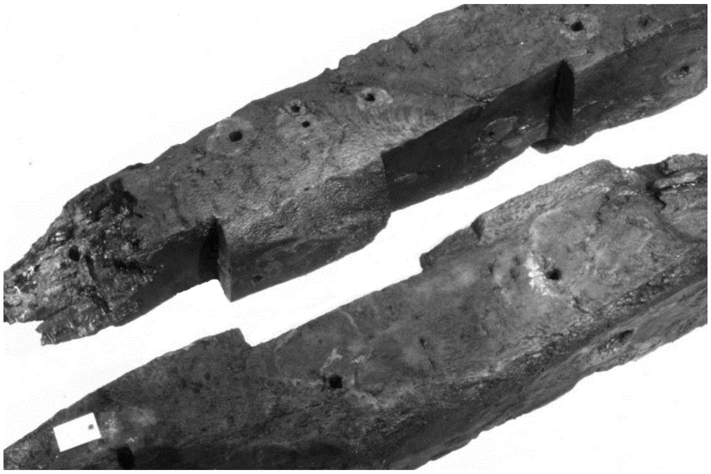
a. Overlap



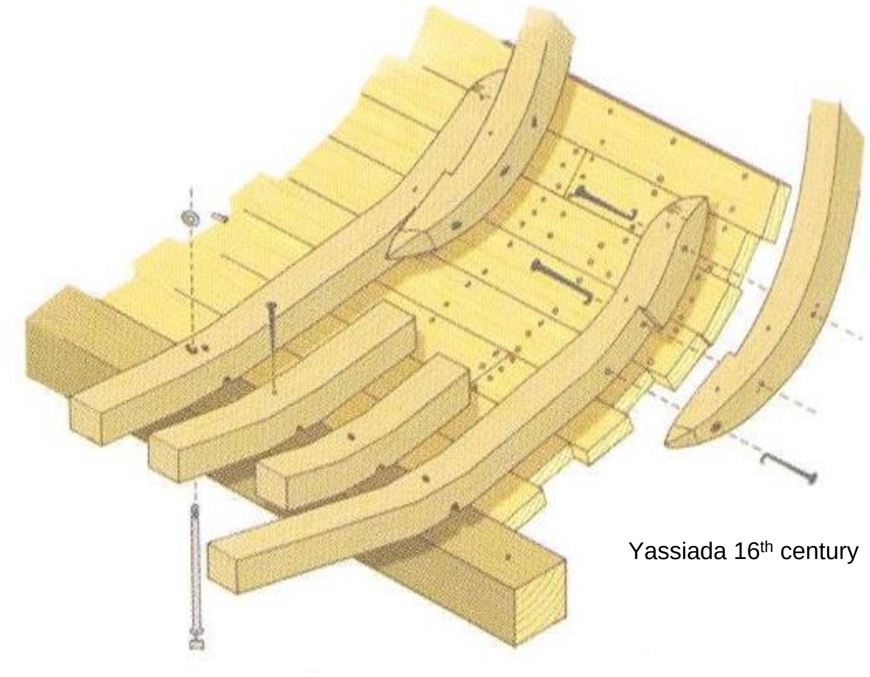
b. Dovetail scarves



c. Square scarves



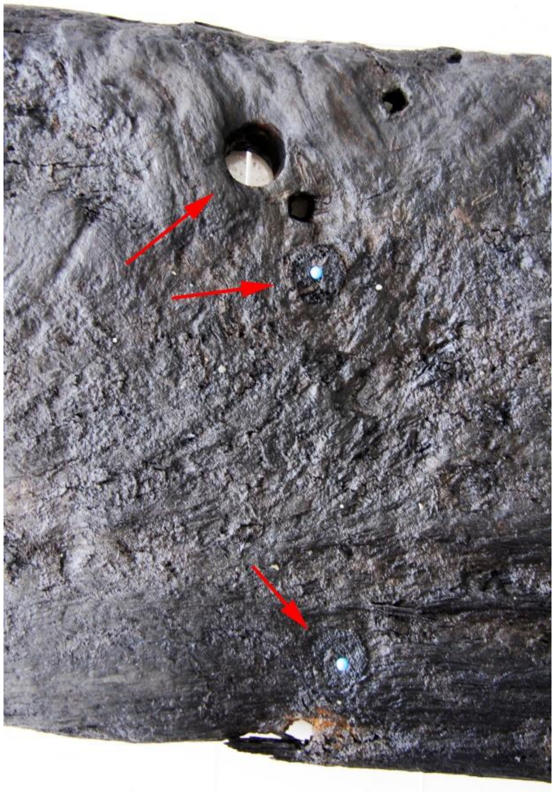
4. Hook scarves



Yassiada 16th century

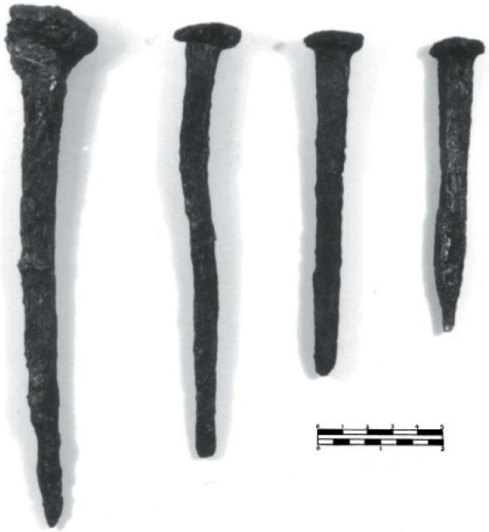
3. Planking fasteners:

1. Treenails



Belinho 1 shipwreck: treenails and treenail hole on the outer surface of a hull plank.

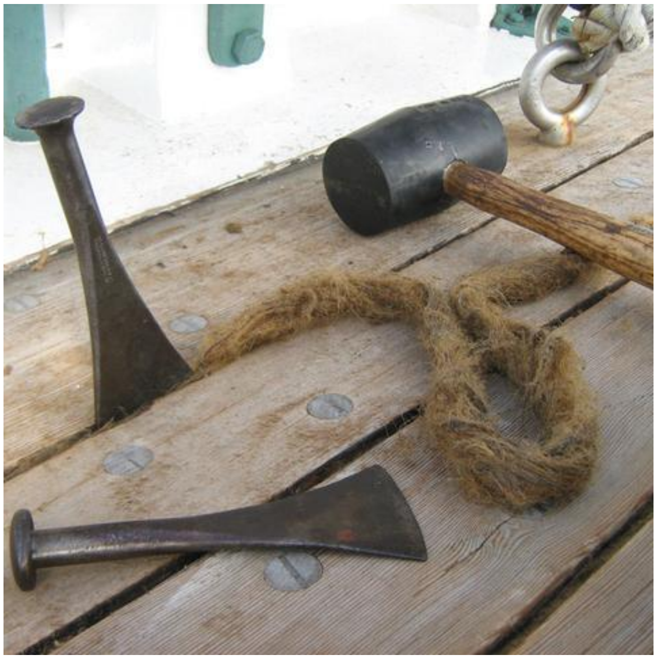
2. Iron nails and spikes,



3. Iron nails, Ø

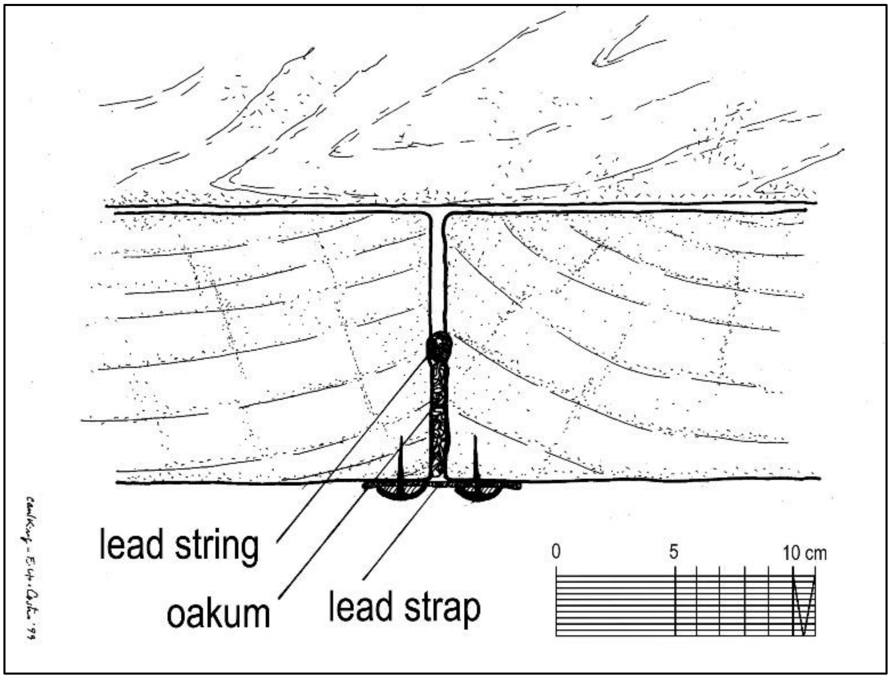
4. Caulking (lower hull):

a. Oakum



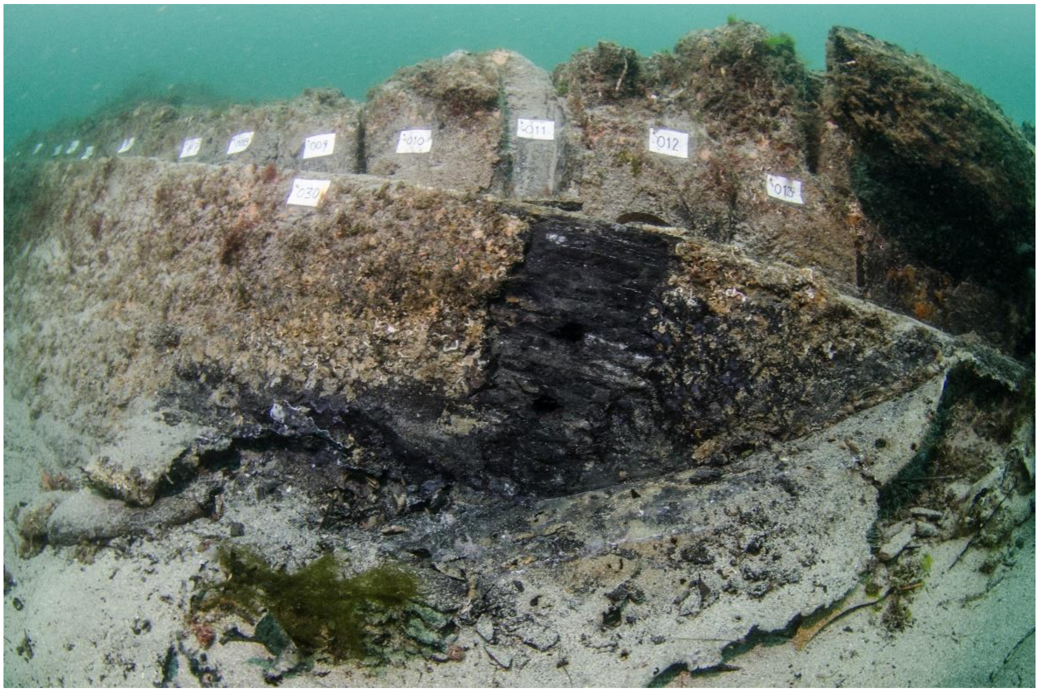
b. Animal hair

c. Lead cord + oakum

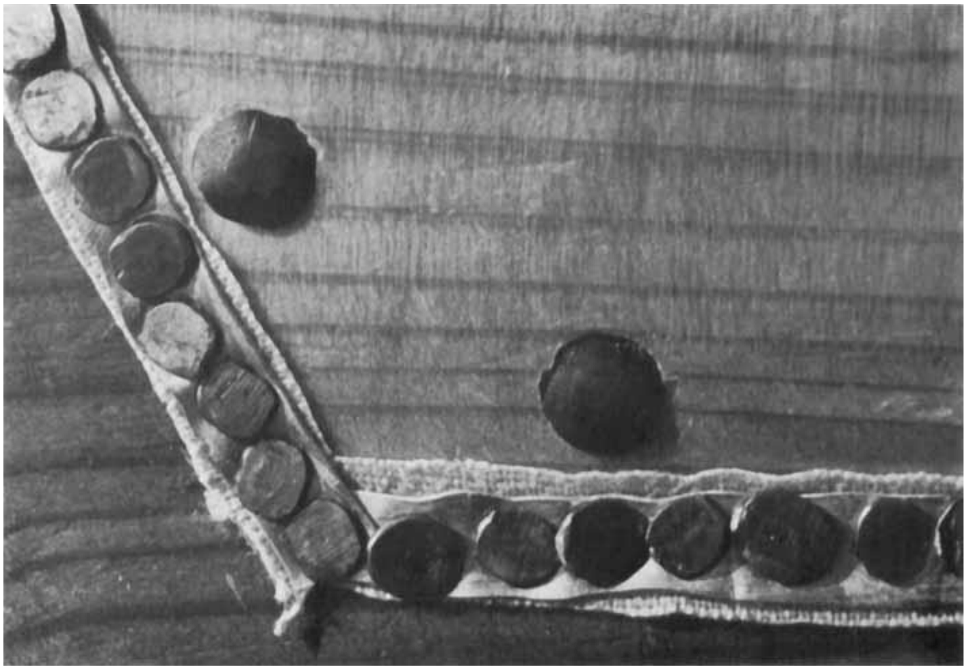

lead string
oakum
lead strap
0
5
10 cm
caulking - F. Vb. Castro '99

5. Sheathing (lower hull):

a. Full


009
010
011
012
013
030

b. Lead straps over the seams

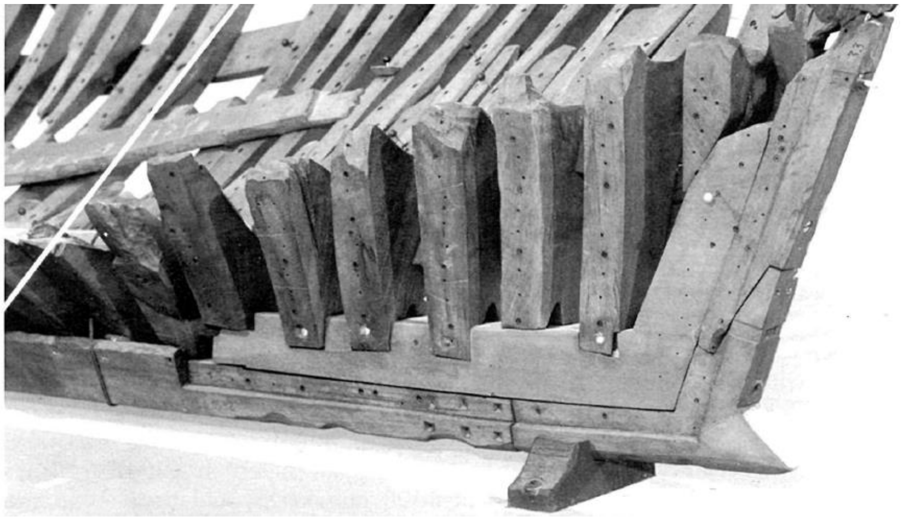


c. Sacrificial wooden layer

IMAGE HERE

6. Keel/sternpost connection:

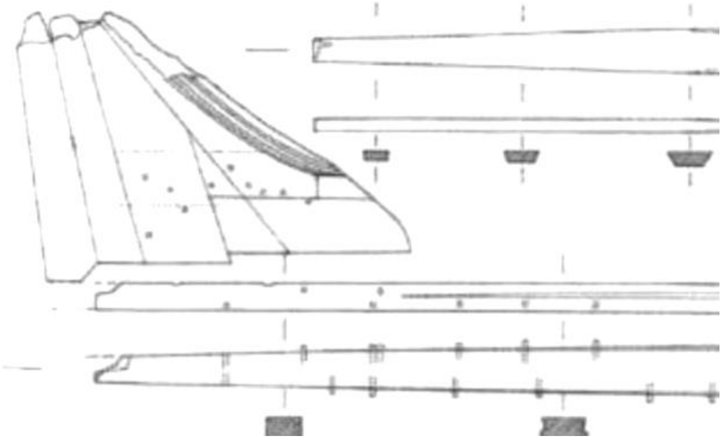
a. Stern heel and stern knee



b. Notch and stern knee

IMAGE HERE

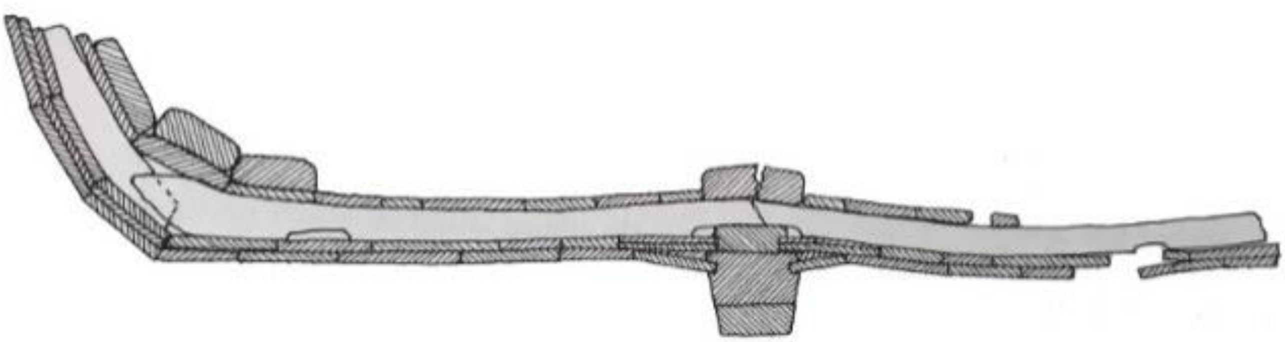
c. Dutch



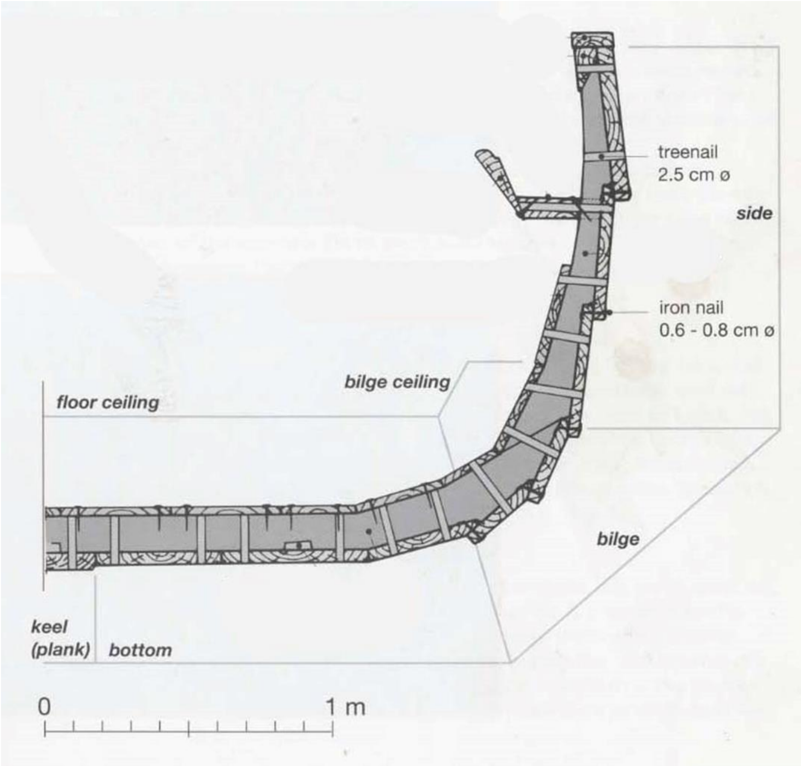
Design Traits Considered

1. Hull shape:

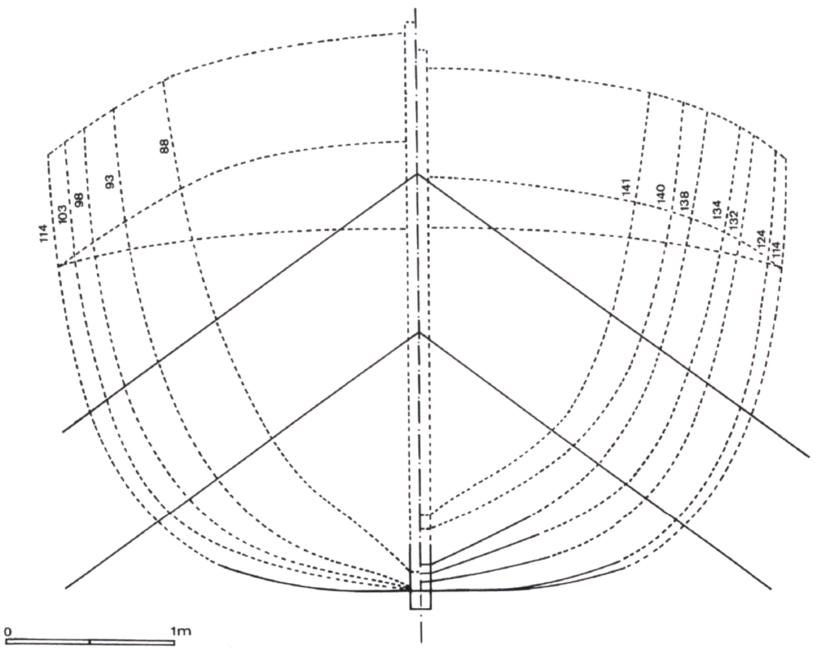
a. Flat bottom, hard chine, straight sides



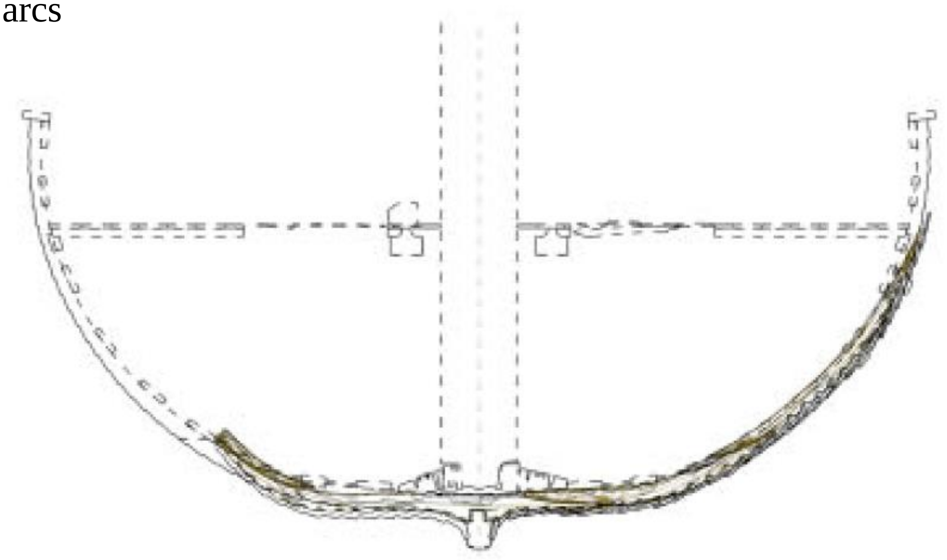
b. Flat bottom, round chine, straight sides


treenail
2.5 cm ø
side
iron nail
0.6 - 0.8 cm ø
bilge ceiling
floor ceiling
bilge
keel
(plank)
bottom
0
1 m

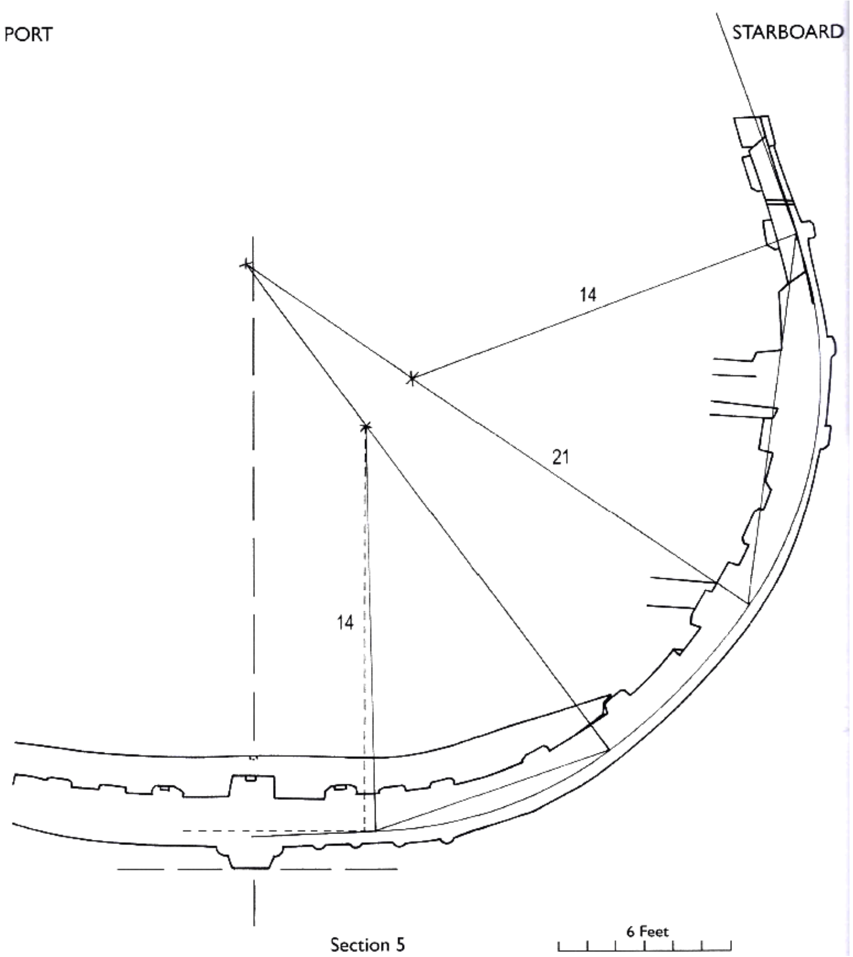
c. Flat bottom, 1 arc


114
103
98
93
88
141
140
138
134
132
124
114
0
1m

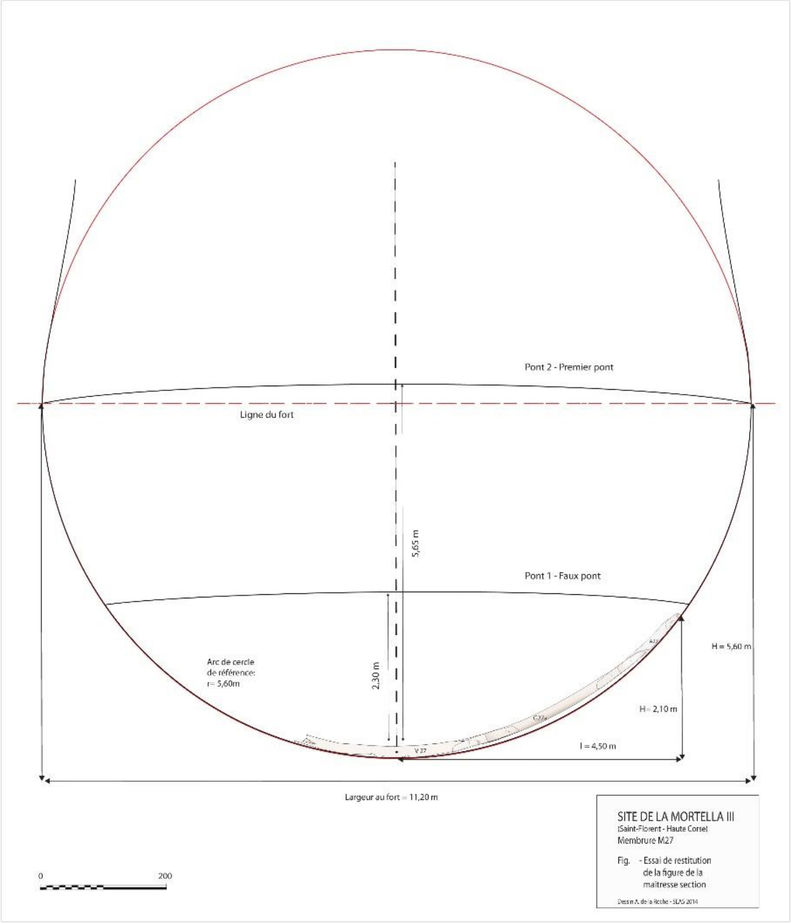
d. Flat bottom, 2 arcs



e. Flat bottom, 3 arcs

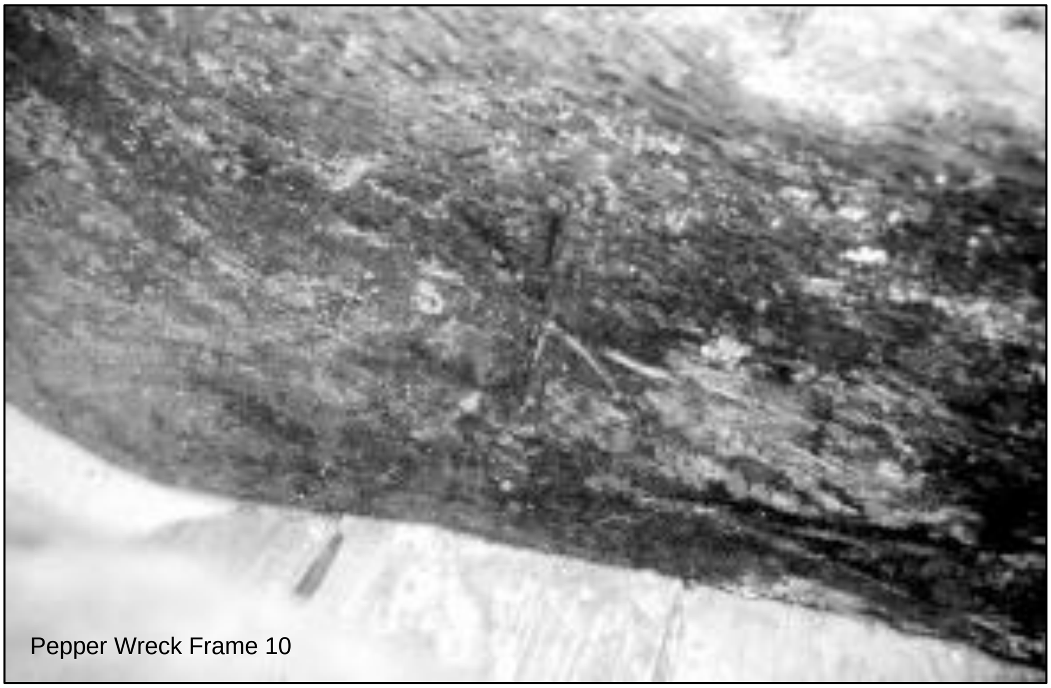

PORT
STARBOARD
14
21
14
Section 5
6 Feet

f. Round


Pont 2 - Premier pont
Ligne du fort
5,65 m
Pont 1 - Faux pont
Arc de cercle
de référence:
r= 5,60m
2,30 m
H = 5,60 m
H= 2,10 m
l = 4,50 m
V 27
Largeur au fort = 11,20 m
0
200
SITE DE LA MORTELLA III
(Saint-Florent - Haute Corse)
Membrure M27
Fig. - Essai de restitution
de la figure de la
maitresse section
Dessin A. de la Roche - SLAS 2014

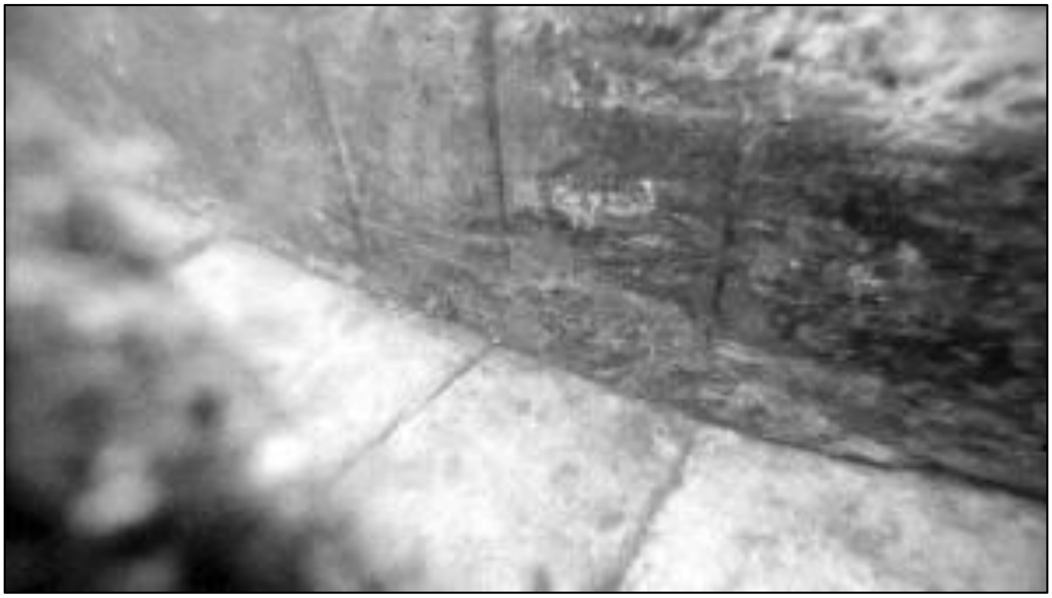
2. Construction Marks:

a. Frames numbered with Roman numerals



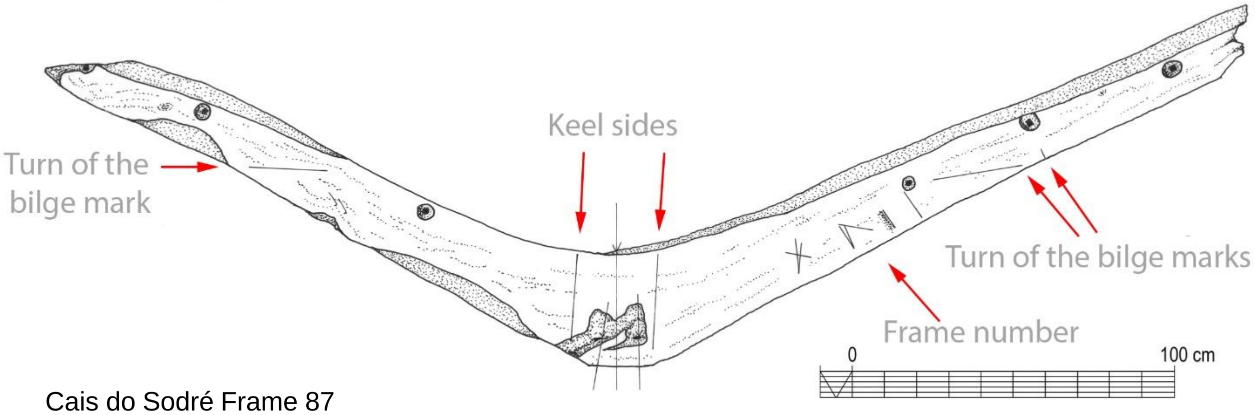
Pepper Wreck Frame 10

b. Center of the keel marked in the floor timbers



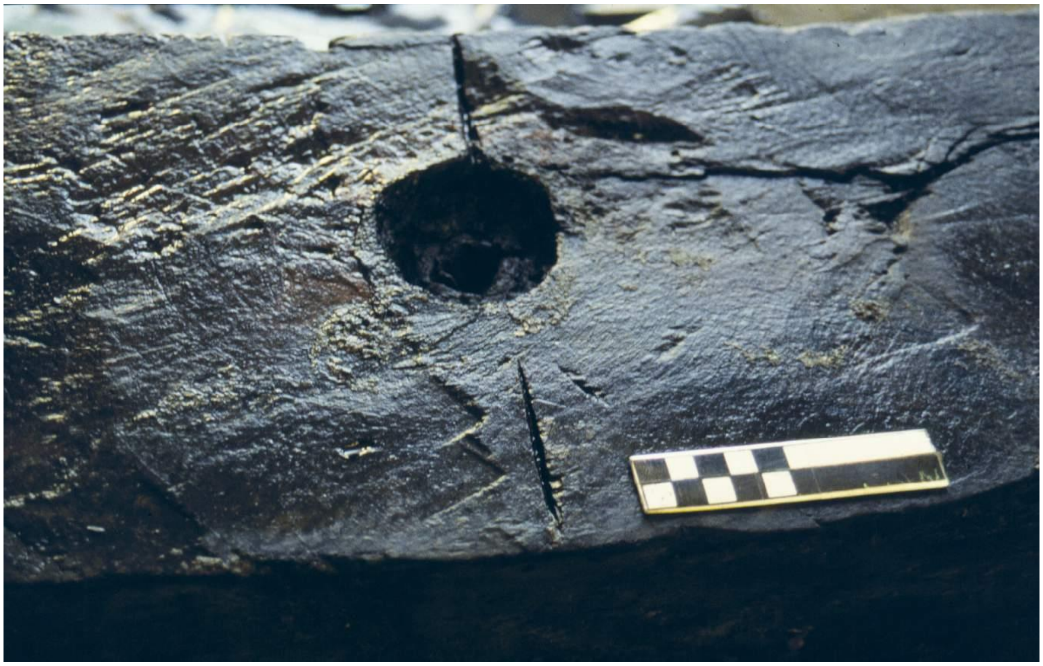
Pepper Wreck keel marks – center and sides – on a floor timber (placed over a keel scarf

c. Sides of the keel marked on the floor timbers


Keel sides
Turn of the bilge mark
Turn of the bilge marks
Frame number
0
100 cm

Cais do Sodré Frame 87

d. Turn of the bilge marks

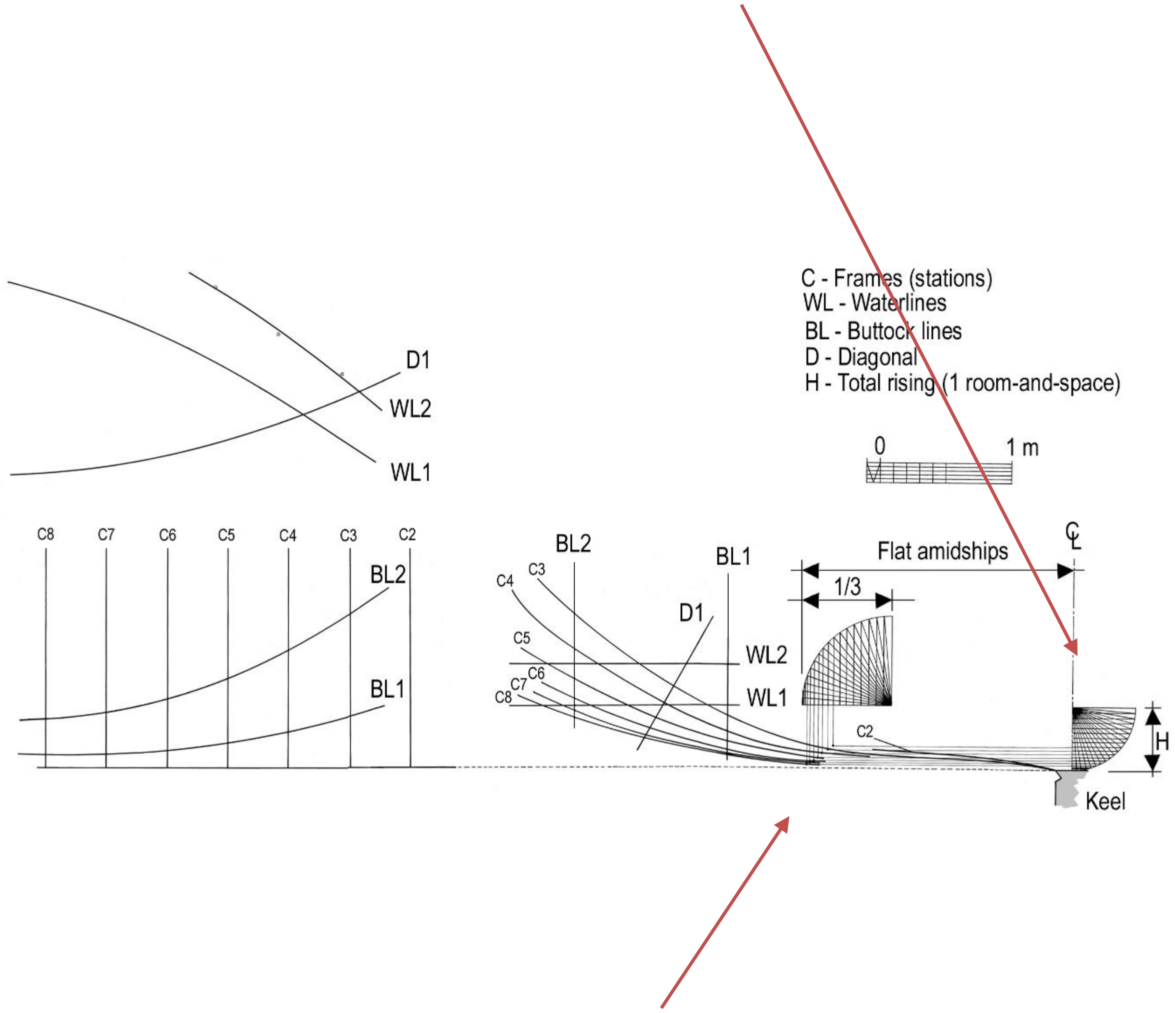


Pepper Wreck

e. Other construction marks

3. Rising and Narrowing:

a. Evidence for rising of the turn of the bilge points



C - Frames (stations)
WL - Waterlines
BL - Buttock lines
D - Diagonal
H - Total rising (1 room-and-space)
0
1 m
D1
WL2
WL1
C8
C7
C6
C5
C4
C3
C2
BL2
BL1
BL2
BL1
C4
C3
D1
C5
C6
C7
C8
WL2
WL1
Flat amidships
1/3
C2
℄
H
Keel

b. Evidence for narrowing of the turn of the bilge points

catalogue

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4.	Aveiro F2	Portugal?	Portugal	Ib	1300-1450
5.	Aveiro G	Portugal?	Portugal	Ib	1300-1450
6.	Culip VI	?	Spain	Ib	1300-1350
7.	Les Sorres X	Spain	Spain	Ib	1300-1350
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9.	Corpo Santo	Portugal?	Portugal	Ib	
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15.	Newport				
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18.	Cavalaire-sur-Mer	Spain?	France		
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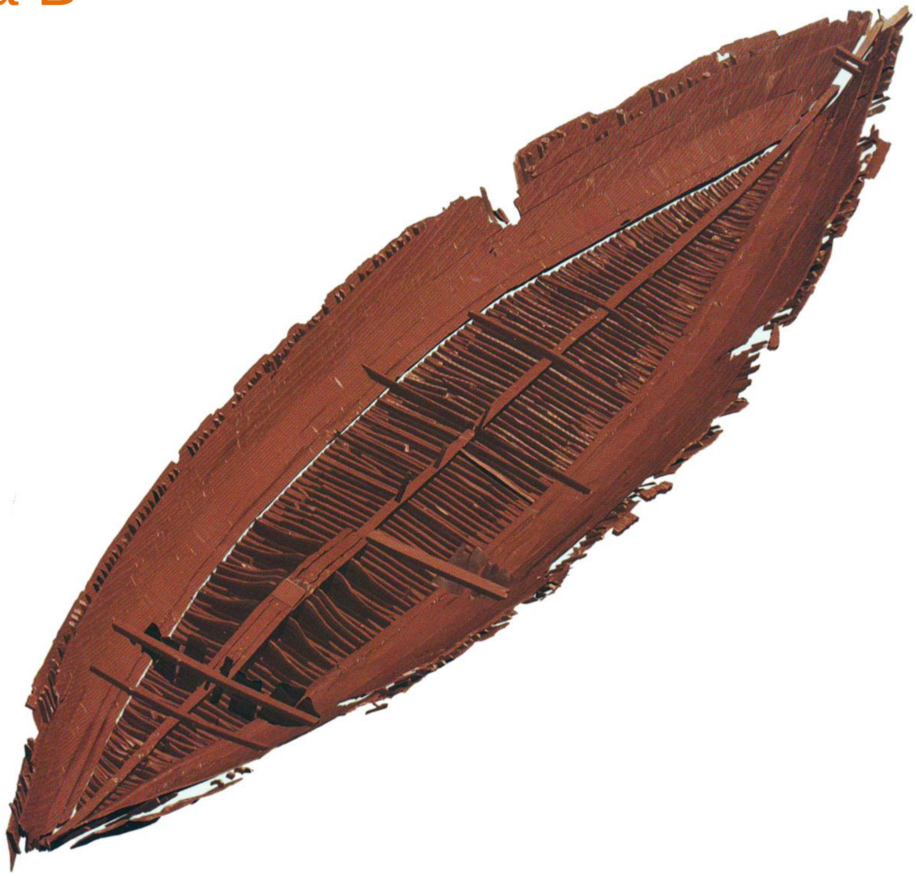
20.	Highbourne Cay	Spain	Nworld	Ib	
21.	Molasses Reef	Portugal?	NWorld	Ib	
22.	Franska Sternarna				
23.	Ngomeni	Portugal	Kenya	Ib	
24.	Cais do Sodré	Portugal?	Portugal	Ib	
25.	Rye A				
26.	*Gribshunden*				
27.	Studland Bay				
28.	San Vito lo Capo				
29.	Casarossa				
30.	Esposende 1	Portugal?	Portugal	Ib	
31.	Cattewater				
32.	Villefranche	Genova	France		
33.	Playa Damas	Spain?			
34.	Belinho 1	Iberian?			
35.	Cattewater				
36.	Mortella 3	Italy			

37.	*Bom Jesus*	Portugal	Namibia	Ib	1530-1533
38.	Ringaren				
39.	*Mary Rose*	UK			
40.	Ritthem				
41.	Greesham				
42.	Arade 1	Bretagne	Portugal	Ib	1575-1600
43.	Mljet	Croatia			
44.	Calvi 1	France			
45.	IDM-002	Portugal			
46.	Western Ledge				
47.	Cap Lardier 1				
48.	Angra B				
49.	Angra B1				
50.	Angra D				
51.	Angra F				
52.	*San Esteban*				
53.	Rocciu				
54.	Emanuel Point 1				
55.	Emanuel Point 2				
56.	Emanuel Point 3				
57.	*Mars*				
58.	*Elefanten*				
59.	*San Juan*				
60.	Yarmouth Roads				
61.	OE34				
62.	Yassiada 3				
63.	Rutland				
64.	Sipan				
65.	B&W4				
66.	Gnalic				
67.	B&W1				
68.	Santo António				
69.	Cadiz 2				
70.	Alderney				
71.	Scheurrak SO1				
72.	Punta Restelos				

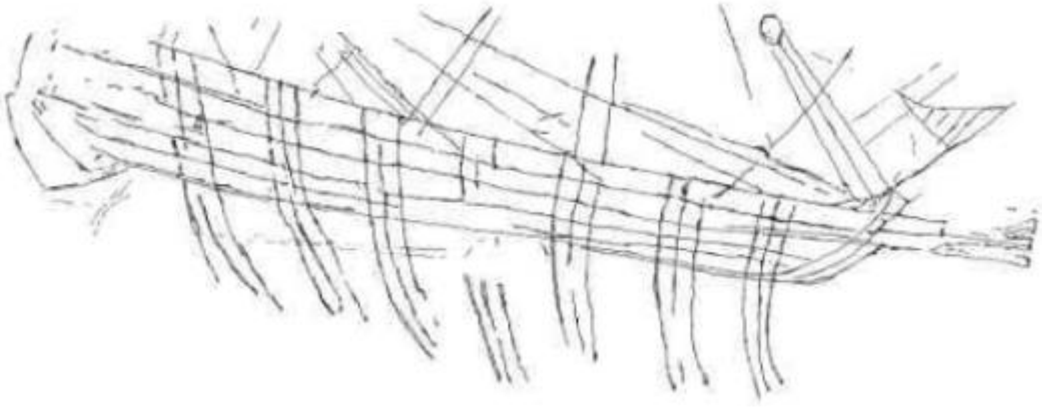
73.	Ribadeo	Naples	Spain	Med	1590-1597
74.	B&W7				
75.	Stonewall				
76.	*San Diego*				
77.	Fuxa				
78.	Cadiz 1				
79.	Agropoli				
80.	IDM-003				
81.	Pepper wreck				
82.	B&W2				
83.	B&W3				
84.	*Mauritius*				
85.	Sea Venture				
86.	Green Cabin				
87.	*Warwick*				
88.	Dry Tortugas				
89.	N. S. Atocha				
90.	Sta. Margarita				
91.	*Vasa*				
92.	Batavia				
93.	St. Honorat 1				
94.	B&W5				

Boccalama B



Fundamentals

Chronology: 1275-1325
Place built – Venice?
Place lost – Buried at Boccalama
Preserved – 38 x 5 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ?
Keel section (s/m) – ? x ? cm
Keelson – ?
Floors section (s/m) – ? x ? cm
R&S – ? cm
Plank thickness – ? cm



Construction traits

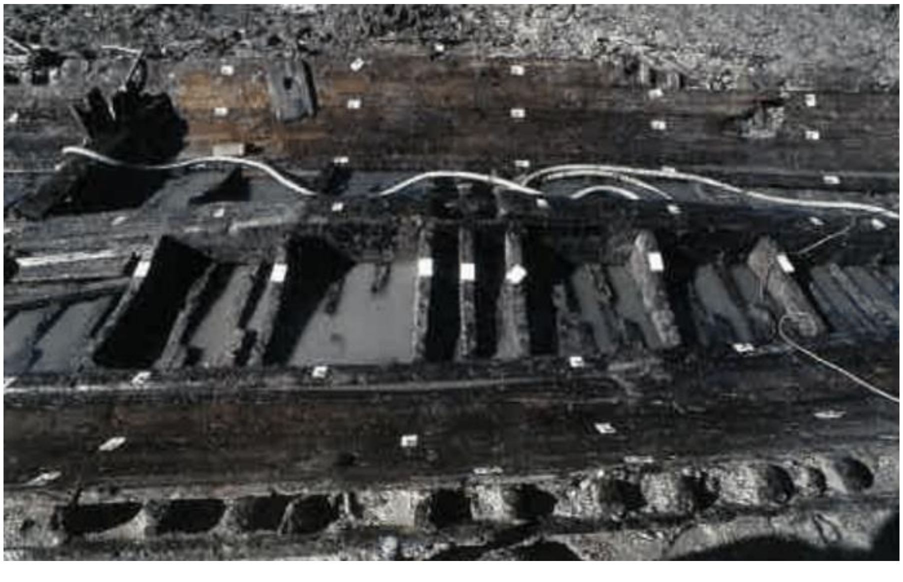
Maststep – Mediterranean
Floor/futtock connection – Overlap w/ iron nails ?
Planking fasteners – Iron nails (Ø)
Caulking – ?
Sheathing – ?
Keel/sternpost connection – ?

Design traits

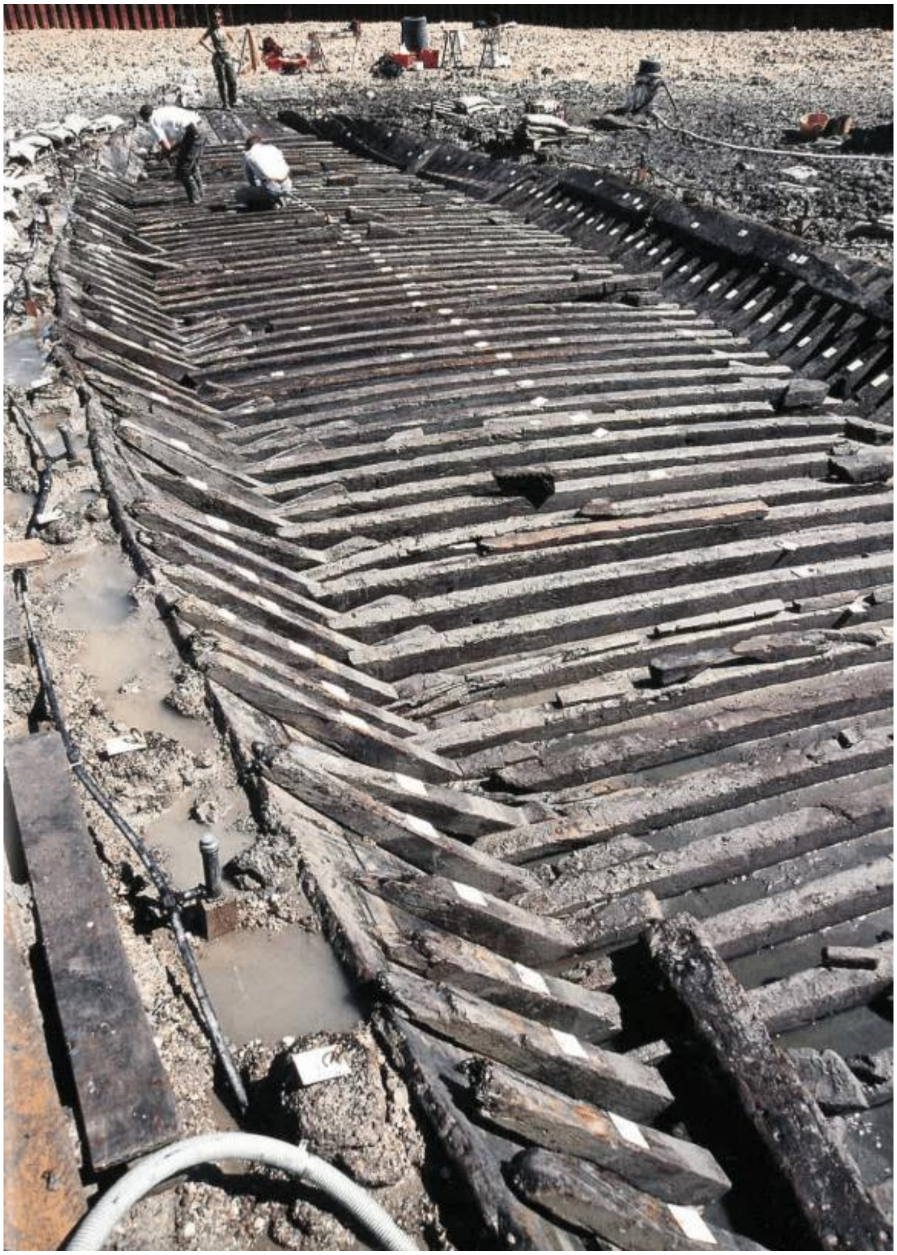
Hull shape – Flat bottom, round chine, straight sides (?)
Construction marks – None known
Evidence for rising and narrowing – Not published (just narrowing)

Notes – A drawing in the interior planking represents a trireme galley with an axial rudder, which is interpreted as a construction scheme of the galley itself.

Refs.:
La galea ritrovata. Origine delle cose di Venezia. Venice. 2002.

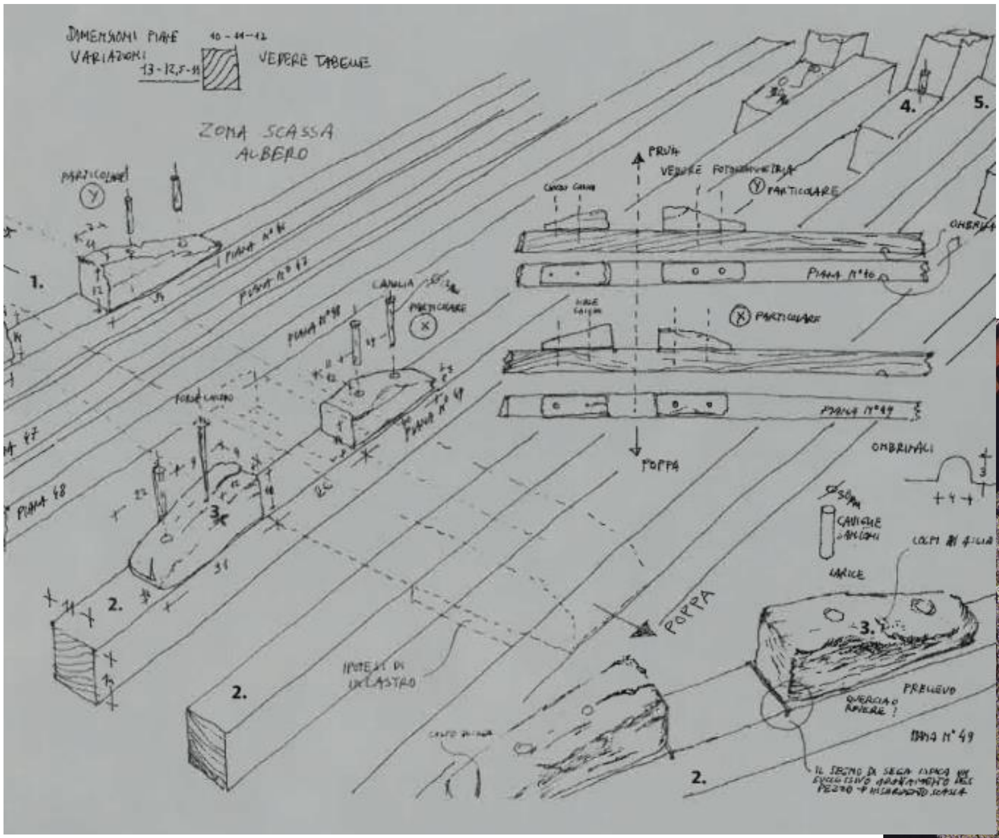


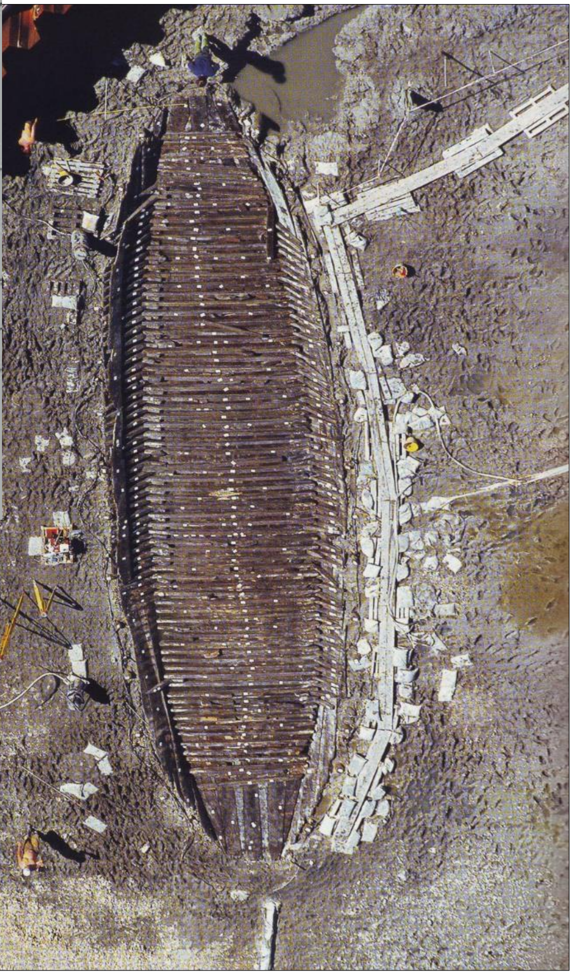
Boccalama A



Fundamentals

Chronology: 1275-1325
Place built – Venice?
Place lost – Buried at Boccalama
Preserved – 23.6 x 6 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – N/A
Keel section (s/m) – N/A
Floors section (s/m) – 12-13 x 7-11 cm
R&S – ? cm
Plank thickness – ? cm


DIMENSIONI PIANE 10 - 11 - 12
VARIAZIONI 13 - 12,5 - 11
VEDERE TABELLE
ZONA SCASSA ALBERO
PARTICOLARE Y
1.
PIANA N° 46
PIANA N° 47
PIANA N° 48
PIANA N° 49
PIANA 48
CAVIGLIA
PARTICOLARE X
FORSE CAVIGLIO
2.
3.
4.
5.
PRUA
VEDERE FOTOGRAMMETRIA
Y PARTICOLARE
PIANA N° 40
X PARTICOLARE
PIANA N° 49
POPPA
OMBRINALI
CAVIGLIE LARICE
COLPI DI ASCIA
IPOTESI DI INCASTRO
PRELIEVO
QUERCIA O ROVERE?
IL SEGNO DI SEGA INDICA UN SUCCESSIVO ADATTAMENTO DEL PEZZO + ALLARGAMENTO SCASSA



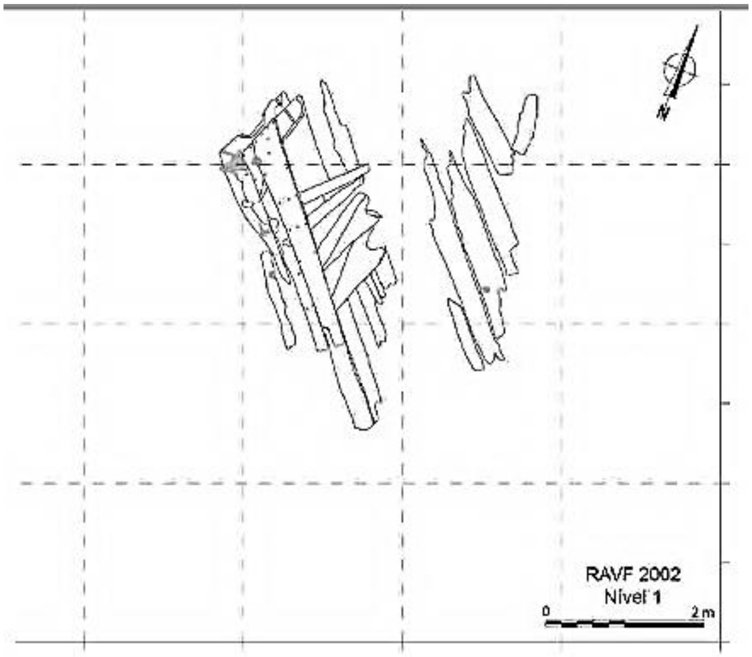
Construction Traits
Caulking – ?
Sheathing – ?
Maststep – N/A
Floor/futtock connection – Overlap w/ iron nails ?
Planking fasteners – Treenails and iron nails
Keel/sternpost connection – N/A

Design Traits
Hull shape – Flat bottom, hard shine.
Construction marks - ?
Evidence for rising and narrowing –

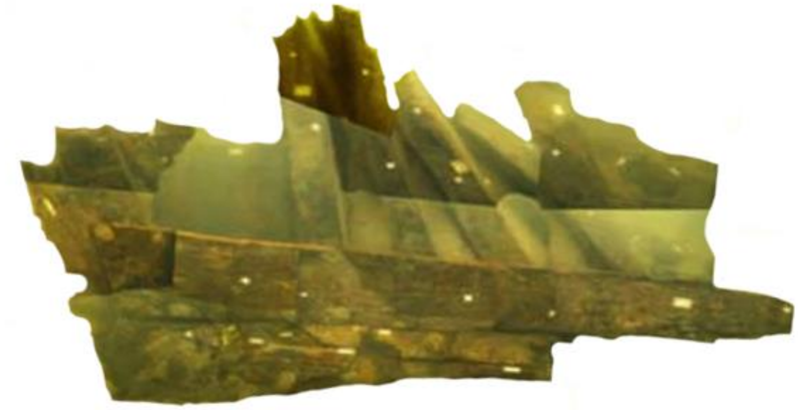
Notes – The wreck had been indentified as a Rasconta. A large worked timber (5.15 m length), was recovered and identified as part of the rudder system.

Refs.:
La galea ritrovata. Origine delle cose di Venezia. Venice. 2002.

Aveiro F1



Fundamentals
Chronology: 1300-1450
Place built – ?
Place lost –
Preserved – 3 x 2 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – Not preserved
Keel section (s/m) – 10.5 x ? cm
Floors section (s/m) – 12 x ? cm
R&S – ? cm
Plank thickness – 3.7 cm



Timbers in storage (2015)

Construction Traits

Maststep – Enlarged keelson (disarticulated)
Floor/futtock connection – hook scarves w/ 3 iron nails
Planking fasteners – Iron nails sq.
Caulking - ?
Sheathing - ?
Keel/sternpost connection – Stern heel receiving the y-frames directly

Design Traits

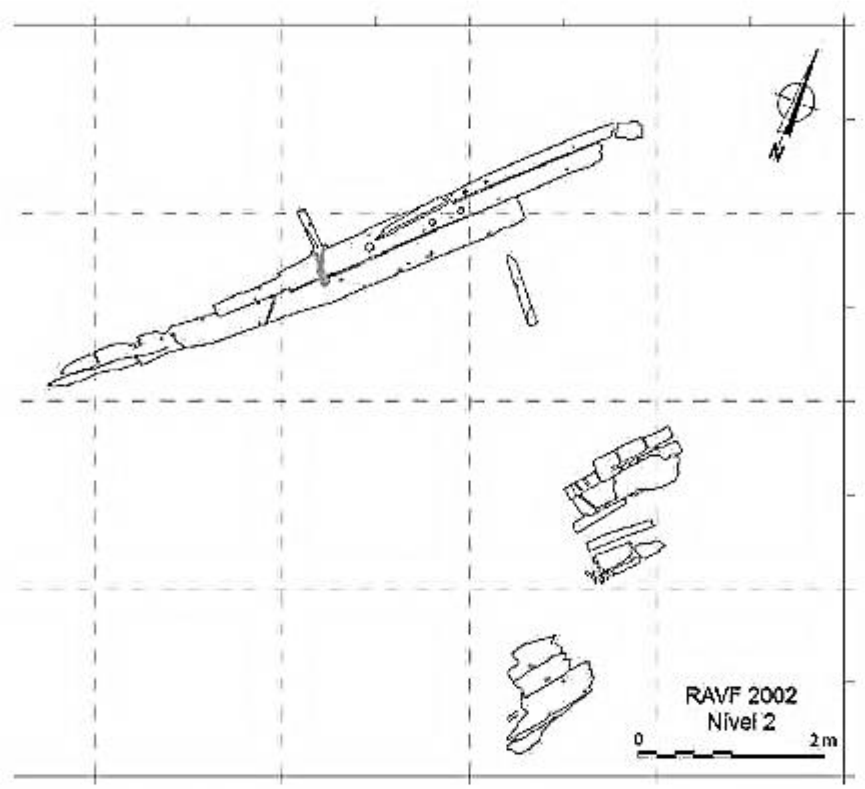
Hull shape – Not preserved
Construction Marks –
Evidence for rising and narrowing –

Notes – These timbers have not been recorded.

Refs:

Bettencourt, J. A., 2009, Arqueologia marítima da Ria de Aveiro: uma revisão dos dados disponíveis.

Aveiro F2



Fundamentals
Chronology: 1300-1450
Place built – ?
Place lost –
Preserved – 7 x 4 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – Not preserved
Keel section (s/m) – N/A
Floors section (s/m) – 10 x 10 cm
R&S – ? cm (not reported)
Plank thickness – 3.5 cm

Construction Traits
Maststep – N/A
Floor/futtock connection – ?
Planking fasteners – Treenails (2 per plank)
Caulking – ?
Sheathing – ?
Keel/sternpost connection – Not preserved

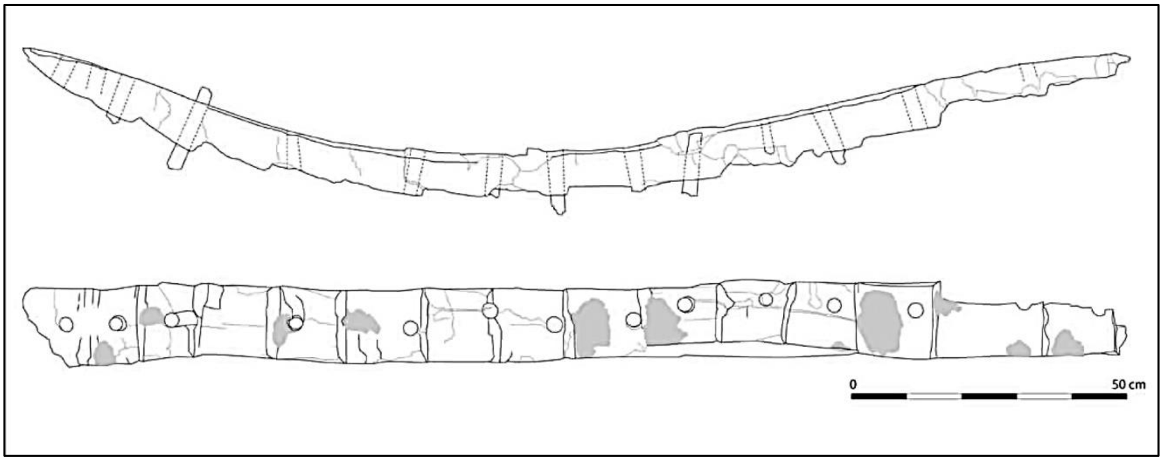
Design Traits
Hull shape – Not preserved
Construction marks –
Evidence for rising and narrowing –

Notes – Lapstrake. Possibly a tender, or the ship's boat.

Ref:

Bettencourt, J. A., 2009, Arqueologia marítima da Ria de Aveiro: uma revisão dos dados disponíveis.

Aveiro G



Fundamentals
Chronology: 1300-1450
Place built – ?
Place lost –
Preserved – ? x 3 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – Not preserved
Keel section (s/m) – Not preserved
Keelson – Not preserved
Floors section (s/m) –12-18.5 x 11.5 cm
R&S – ? cm (not recorded)
Plank thickness – 3 cm

Timbers in storage (2015)

Timbers in situ (Miguel Aleluia)

Construction Traits
Maststep – N/A
Floor/futtock connection – Horizontal overlap w/ treenails
Planking fasteners – Treenails
Caulking – ?
Sheathing – ?

Design Traits
Keel/sternpost connection – N/A
Hull shape – Not preserved
Notes – Clinker built.

Ref:
Bettencourt, J. A., 2009, Arqueologia marítima da Ria de Aveiro: uma revisão dos dados disponíveis.

Culip VI

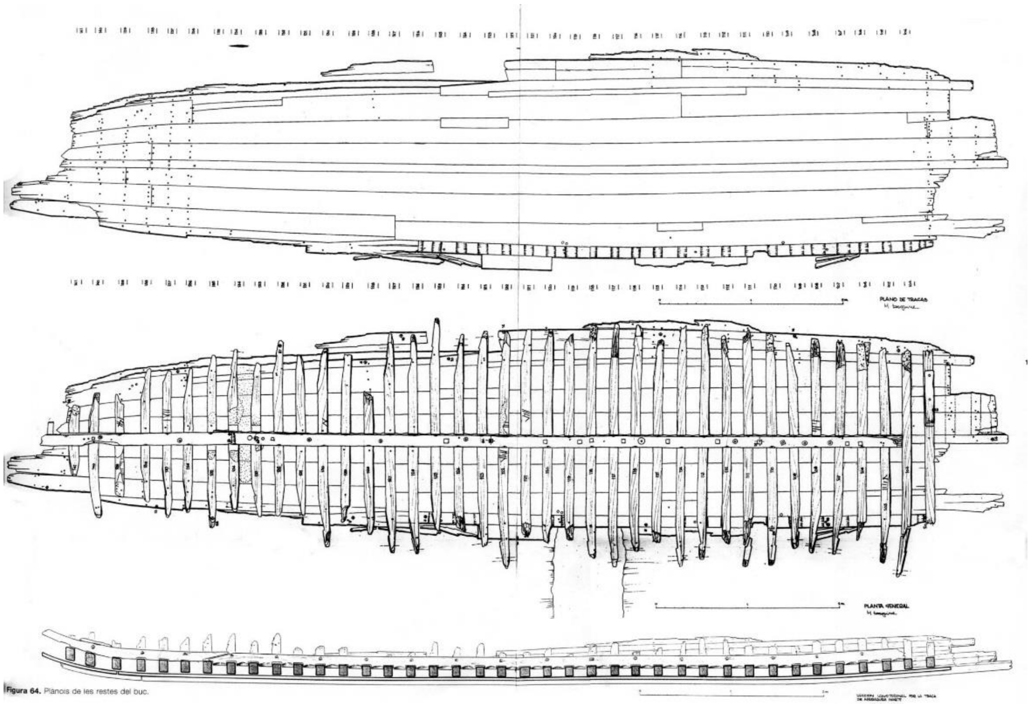

PLANO DE TRACAS
PLANTA GENERAL

Figura 64. Plànols de les restes del buc.

Fundamentals

Chronology: 1300-1350
Place built – Catalonia?
Place lost –
Preserved – 11 x 3 m
Length reconstructed – 16.35 m; Beam reconstructed – 4.11 m
Keel length – 13.5 m
Keel section (s/m) – 9 x 9 cm
Floors section (s/m) – 11 x 13 cm
R&S – 24.5 cm
Plank thickness – 3 cm
Caulking – ?
Sheathing – ?
Maststep – N/A
Floor/futtock connection – Hook scarves
Planking fasteners – Iron nails (sq.)
Keel/sternpost connection – N/A
Hull shape – Flat with 1 arc
Notes –

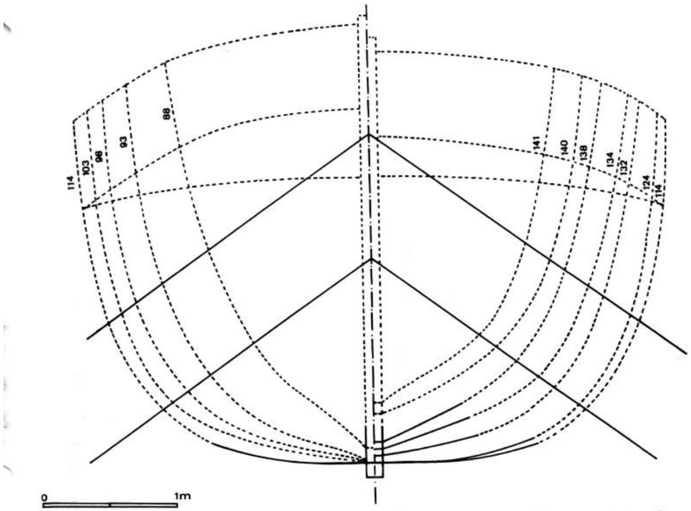
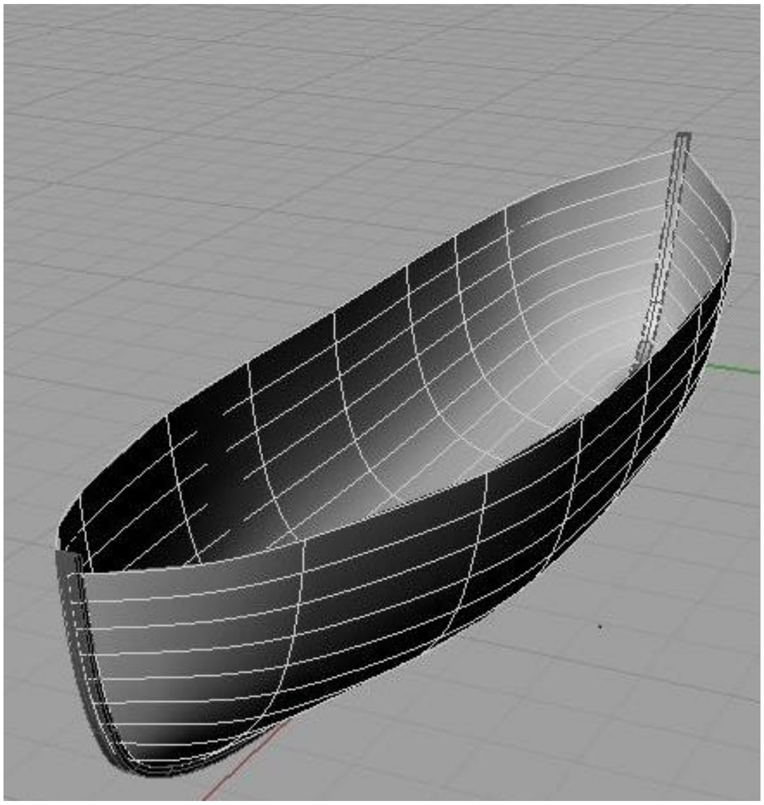

114
103
98
93
88
141
140
138
134
132
124
114
0
1m

Figure 91. Restitution des sections transversales du caboteur de Culip VI. Les traits en pointillé correspondent aux lignes restituées. Les estamenaires ont été restitués sans trébuchement.



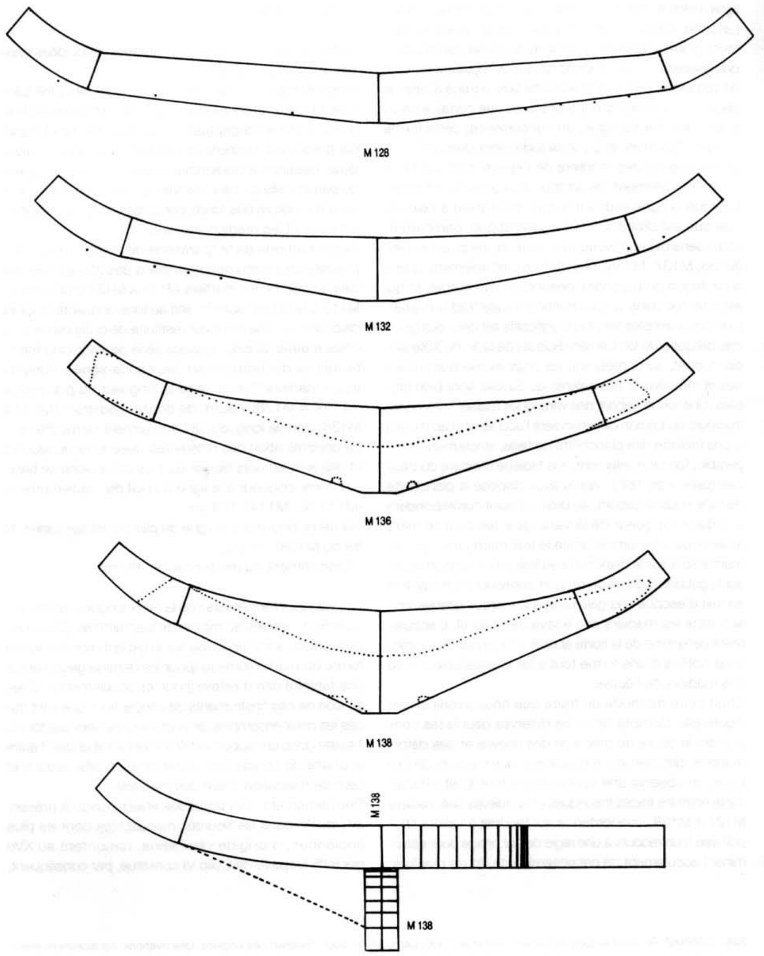


Figure 84.

1. Restitution du madier fond d'estelle M128 (trait plein). Les points correspondent aux valeurs directement relevées sur le madier qui ne s'inscrivent pas dans le tracé restitué. Le même principe de représentation se retrouve dans les autres figures.
2. Restitution du madier fond d'estelle M132.
3. Restitution du madier fond d'estelle M136.
4. Restitution du madier-radier M138.
5. Restitution du tracé du madier-radier M138 à l'aide du gabarit du madier-jumeau et de la tablette d'estelle ou d'acculement.

Construction Traits
Maststep – N/A
Floor/futtock connection – Hook scarves
Planking fasteners – Iron nails (sq.)
Caulking – ?
Sheathing – ?
Keel/sternpost connection – N/A

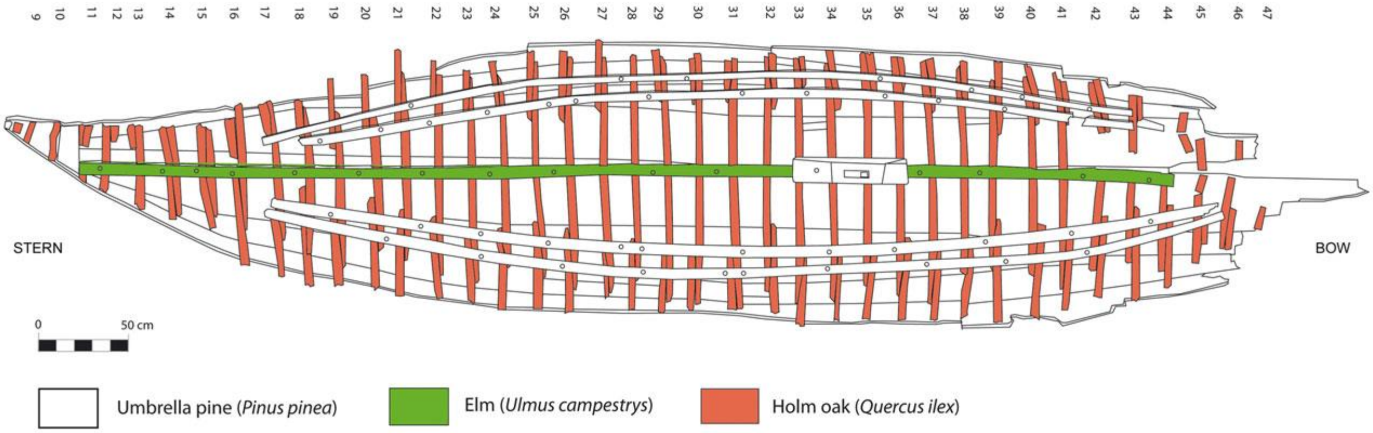
Design Traits
Hull shape – Flat with 1 arc
Construction marks – Roman Numerals present
Evidence for rising and narrowing – E. Reith states the floor timbers show evidence for rising and narrowing

Notes –

Ref:

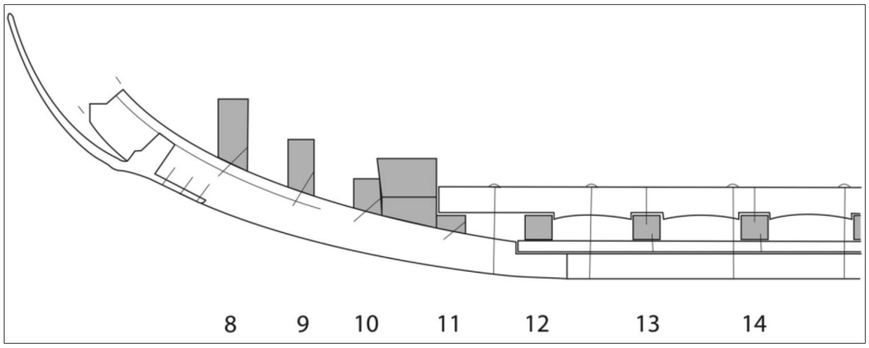
Palou, H., Rieth, E., Izaguirre, M., Jover, A., Nieto, X., Pujol, M., Raurich, X. and Apestegui Cardenal, C., 1998, *Excavacions Arqueologiques Subaquatiques a Cala Culip VI. 2*. Girona.

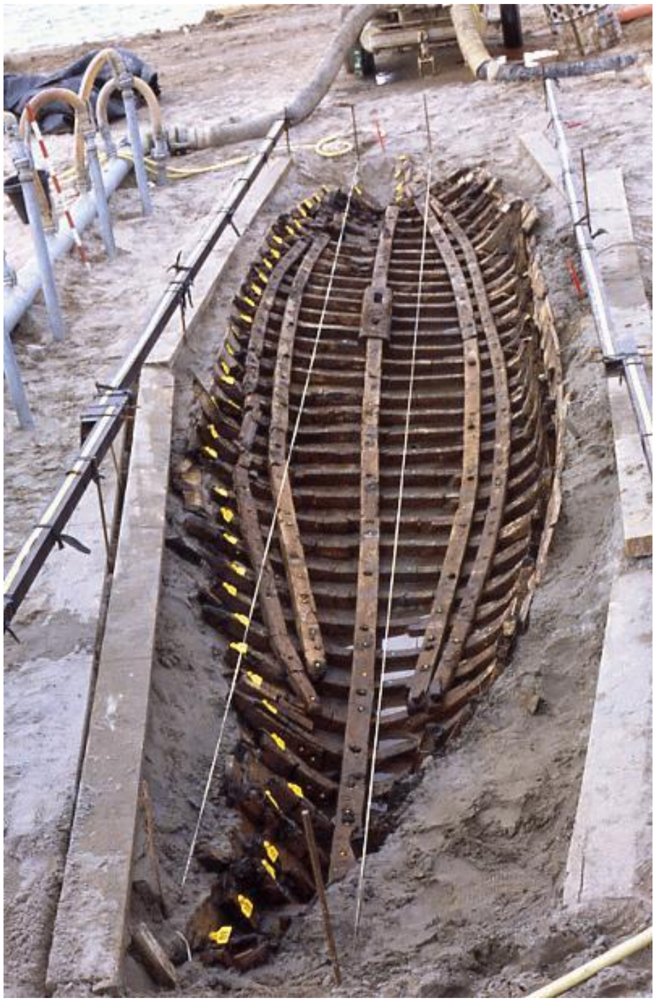
Les Sorres X

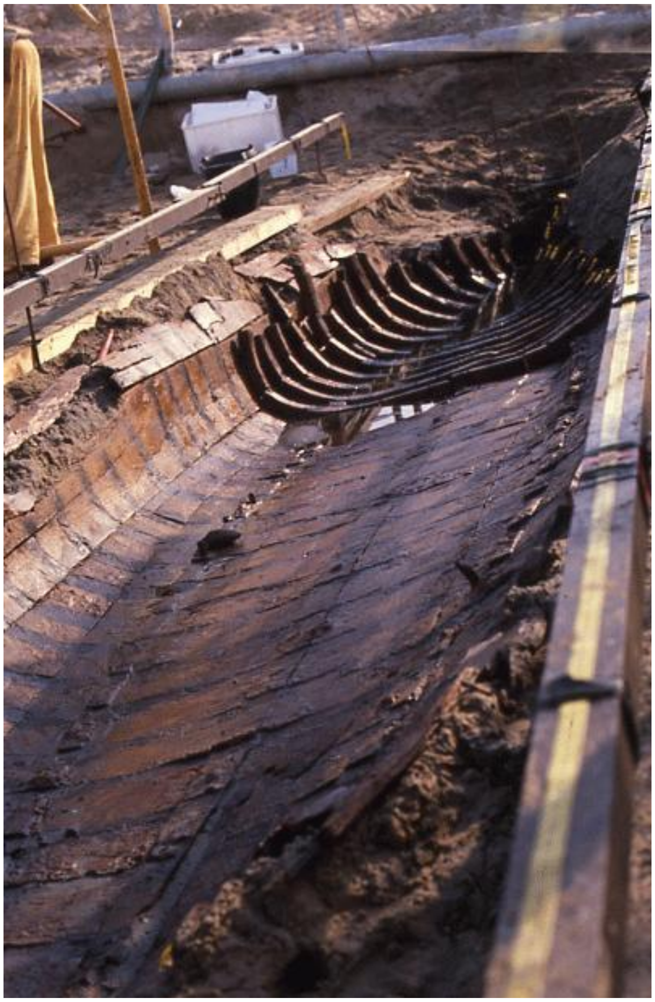

9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
STERN
BOW
0
50 cm
□ Umbrella pine (*Pinus pinea*)
🟩 Elm (*Ulmus campestrys*)
🟥 Holm oak (*Quercus ilex*)

Fundamentals

Chronology: 1300-1350
Place built – Catalonia?
Place lost –
Preserved – 1.8 x 1.6 m
Length reconstructed – 9-10 m; Beam reconstructed – 1.9 m
Keel length – 6.35 m
Keel section (s/m) – 10 x 2 cm plank + 7 x 6 cm
Floors section (s/m) – 5 x 5 cm
R&S – 20 cm
Plank thickness – 2 cm
Caulking – ?
Sheathing – No
Maststep – Chock
Floor/futtock connection – Overlap w/ iron nails
Planking fasteners – Iron nails (sq.)
Keel/sternpost connection – Butt scarf w/ keel plank forming a flat horizontal scarf. Sternpost not preserved.
Hull shape – Flat floor and round sides.
Notes –


8
9
10
11
12
13
14





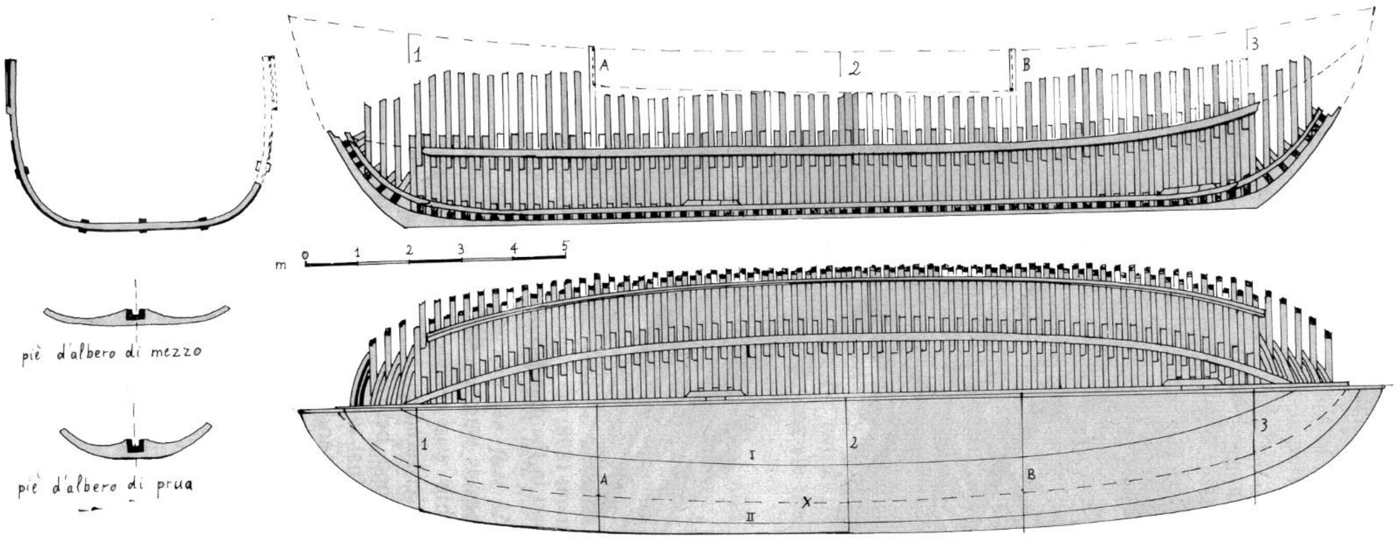
Construction Traits
Maststep – Chock
Floor/futtock connection – Overlap w/ iron nails
Planking fasteners – Iron nails (sq.)
Caulking – ?
Sheathing – No
Keel/sternpost connection – Butt scarf w/ keel plank forming a flat horizontal scarf. Sternpost not preserved.

Design Traits
Hull shape – Flat floor and round sides.
Construction Traits – Central line and the locations for the turn of the bilge
Evidence of rising and narrowing – Hamelink states the Mediterranean whole moulding method was used

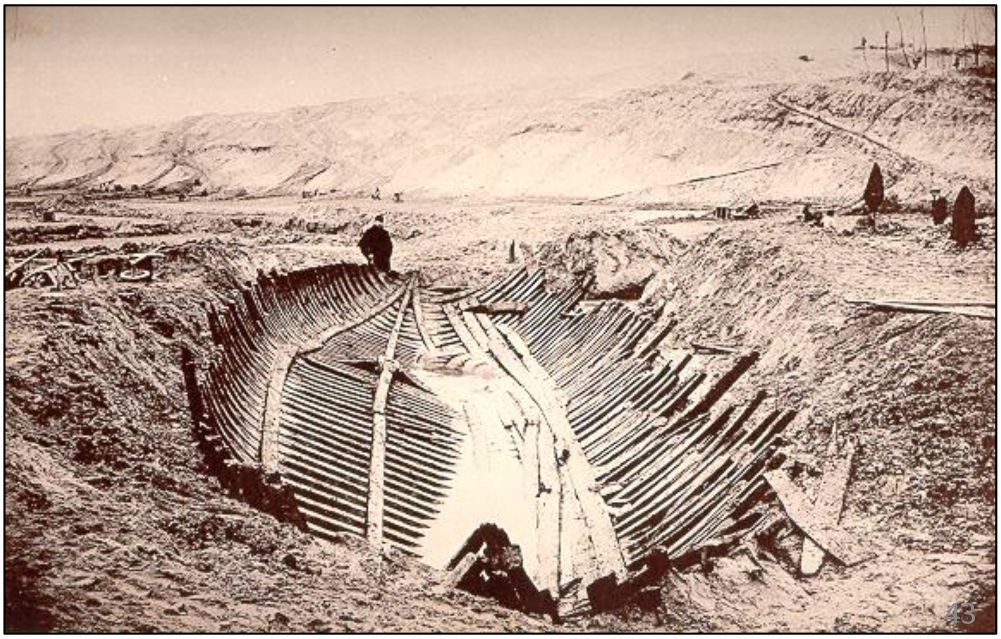
Notes –

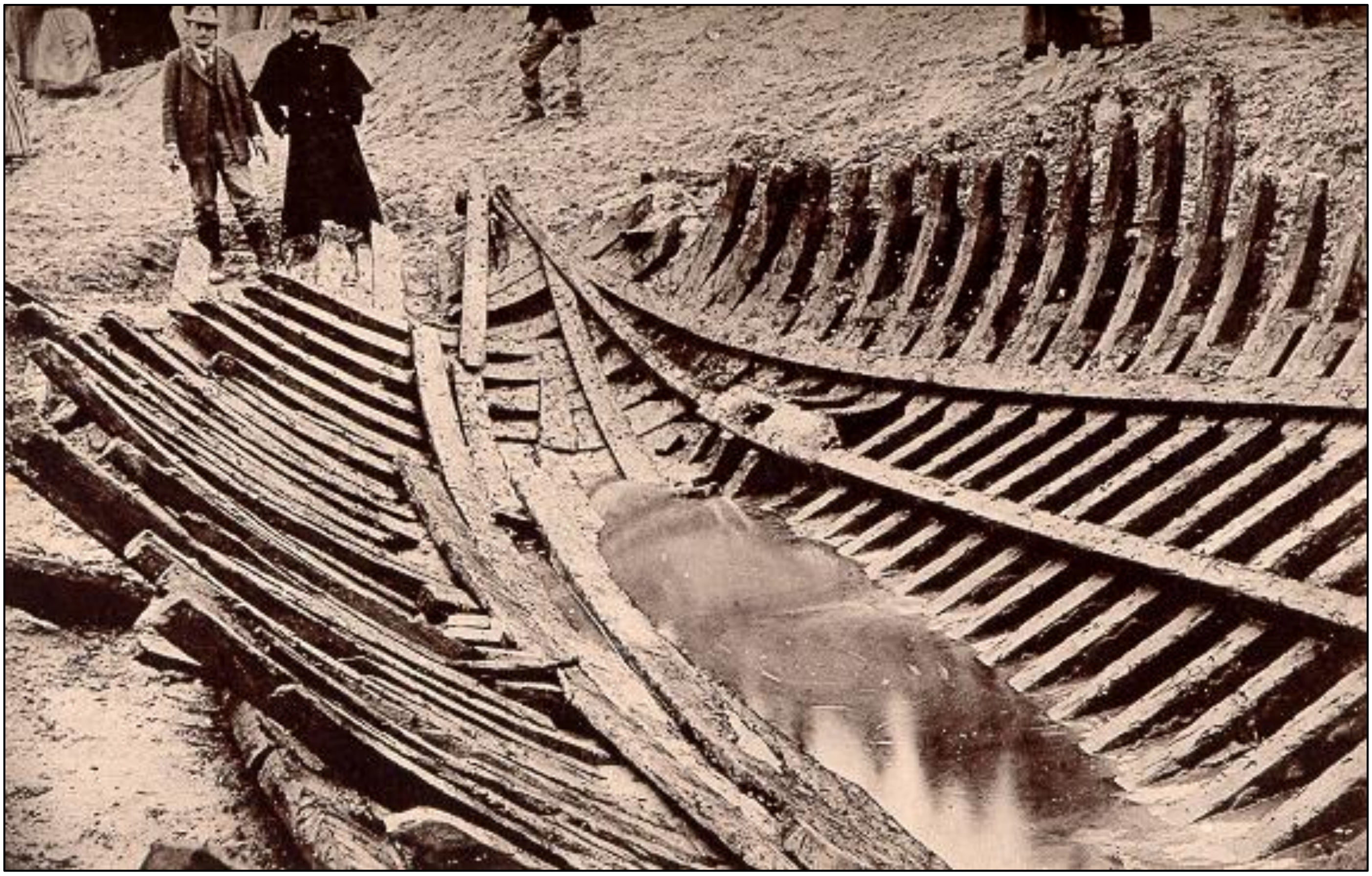
Refs:
Pujol, M., 2016, "Medieval shipbuilding in Catalonia, Spain (13th–15th centuries): one principle, different processes," *IJNA* 45.2: 283-295.

Contarina 1


1
A
2
B
3
m 0 1 2 3 4 5
piè d'albero di mezzo
piè d'albero di prua
I
II
X

Fundamentals
Chronology: 1425-1475
Place built – Italy
Place lost –
Preserved – 20 x 5.2 m
Length reconstructed – 20.9 m; Beam reconstructed – 5.1 m
Keel length – 16.5 m
Keel section (s/m) – 15 x 7 cm
Floors section (s/m) –12 x 12 cm
R&S – 28 cm
Plank thickness – 4 cm





Construction Traits
Maststep – Mediterranean
Floor/futtock connection – Overlap w/ iron nails
Planking fasteners –Iron nails ?
Caulking – ?
Sheathing – ?
Keel/sternpost connection – ?
Sternpost – round

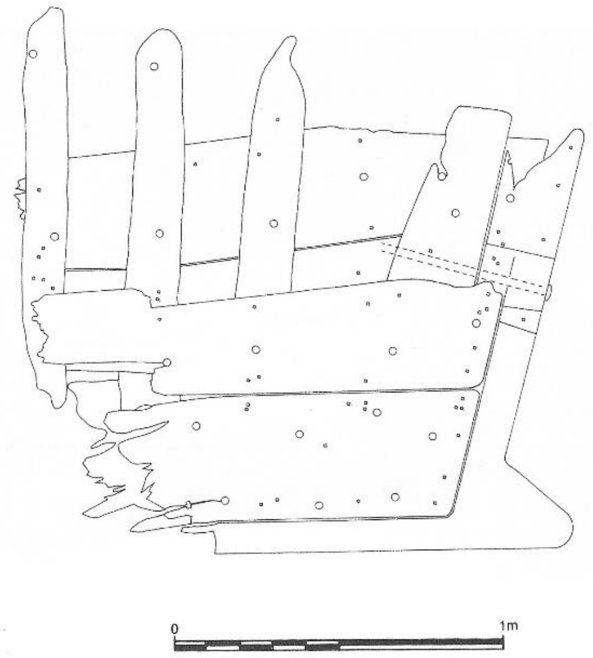
Design Traits
Hull shape – Flat bottom w/ round turn of the bilge

Notes –

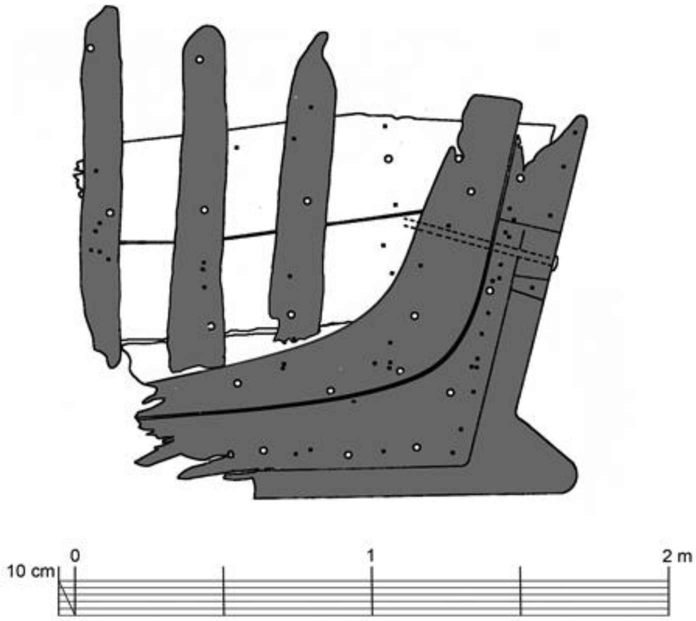
Ref:

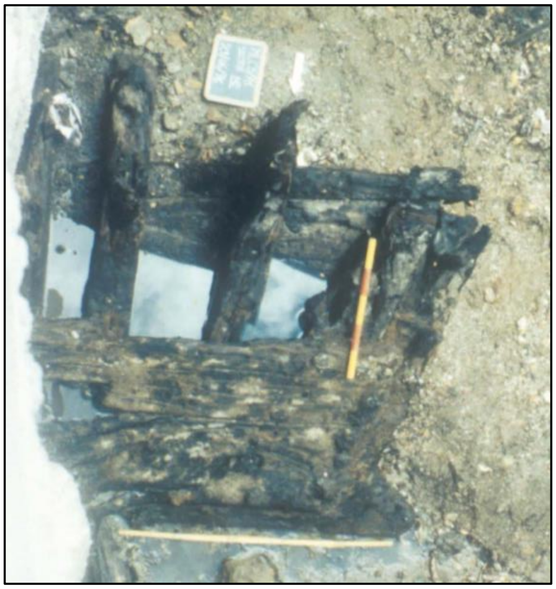
Beltrame, C., 2009, A New View of the Interpretation of the Presumed Medieval Po Delta Wrecks, Italy. *IJNA* **38**.2, 412-417.
Bonino, M., 1978, Lateen-rigged medieval ships. New evidence from wrecks in the Po Delta (Italy) and notes on pictorial and other documents. *International Journal of Nautical Archaeology* **7**.1, 9-28.

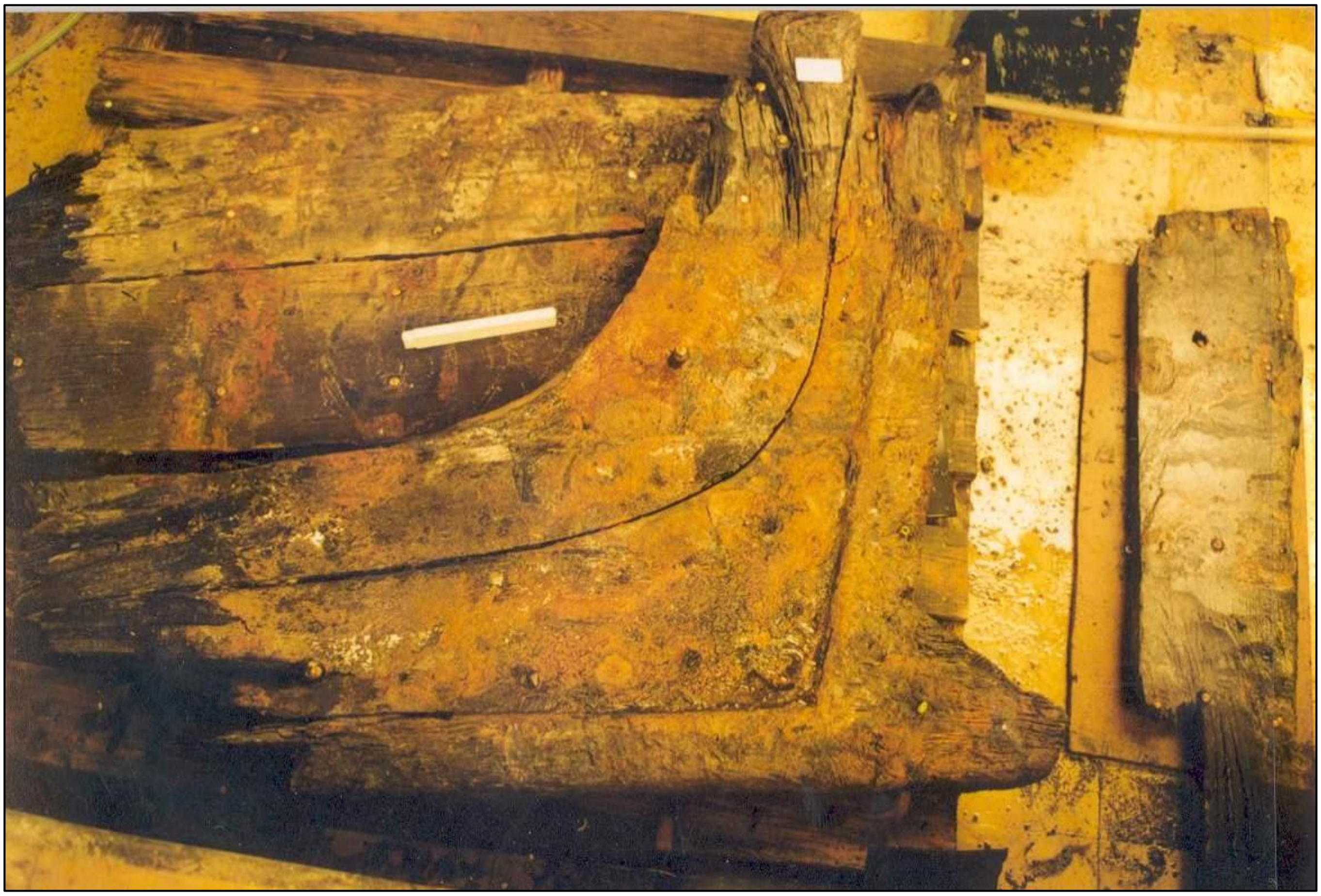
Corpo Santo



Fundamentals
Chronology: 1350-1450
Place built – Portugal?
Place lost –
Preserved – 1.8 x 1.6 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) – 11 x 13 cm
Keelson – not preserved
Floors section (s/m) –16 x ? cm
R&S – 32 cm
Plank thickness – 4 cm







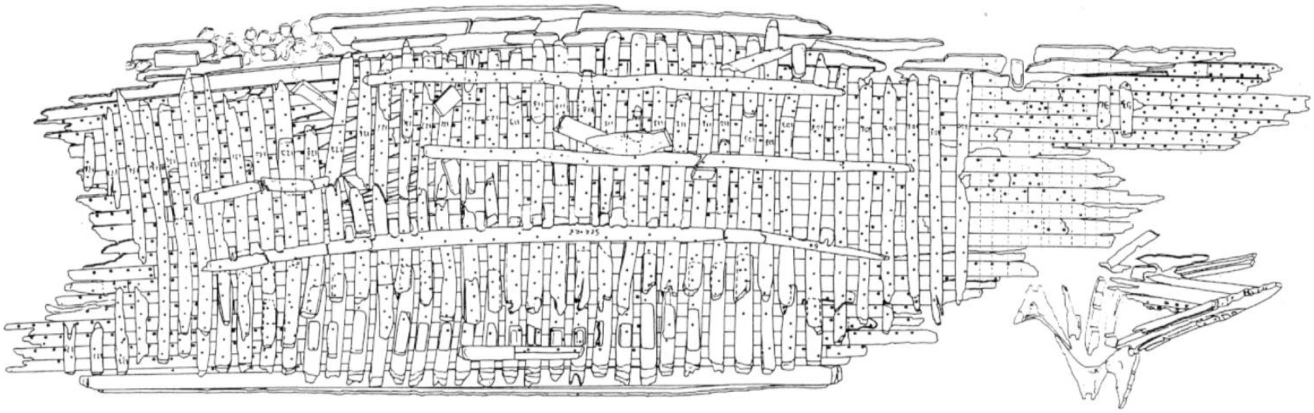
Construction Traits
Maststep – N/A
Floor/futtock connection – N/A
Planking fasteners – Treenails and iron nails (sq.)
Caulking – ?
Sheathing – No
Keel/sternpost connection – N/A

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

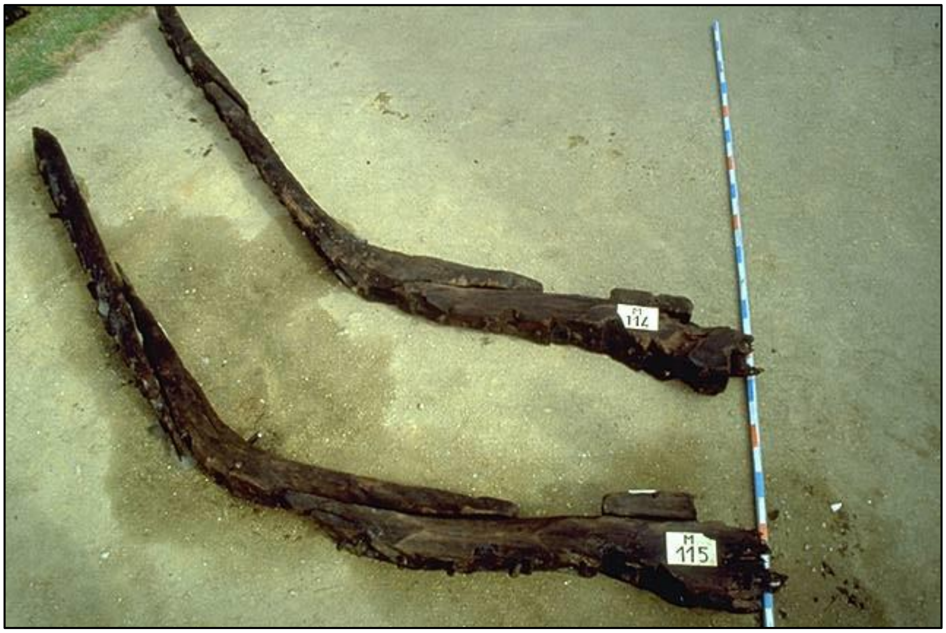
Notes –

Ref:
Alves, F., Rieth, E. and Rodrigues, P., 2001, The remains of a 14th-century shipwreck at Corpo Santo and of a shipyard at Praça do Município, Lisbon, Portugal. In F. J. S. Alves (ed.), *Proceedings of the International Symposium on Archaeology of Medieval and Modern Ships of Iberian-Atlantic Tradition*, 405-426. Lisbon.

Aber Wrac'h



Fundamentals
Chronology: 1375-1435
Place built – near Bordeaux or on the north coast of Spain.
Place lost – 30 km north of Brest (Brittany, France).
Preserved – 20 x 6 m.
Length reconstructed – 25 m; Beam reconstructed – 8 m.
Keel length – 10 m.
Keel section (s/m) – Its section is more or less trapezoidal, deepens amidships and the lateral grooves disappear.
Floors section (s/m) –15-25 x 15-25 cm.
R&S – 13 cm.
Plank thickness – 3 cm ?



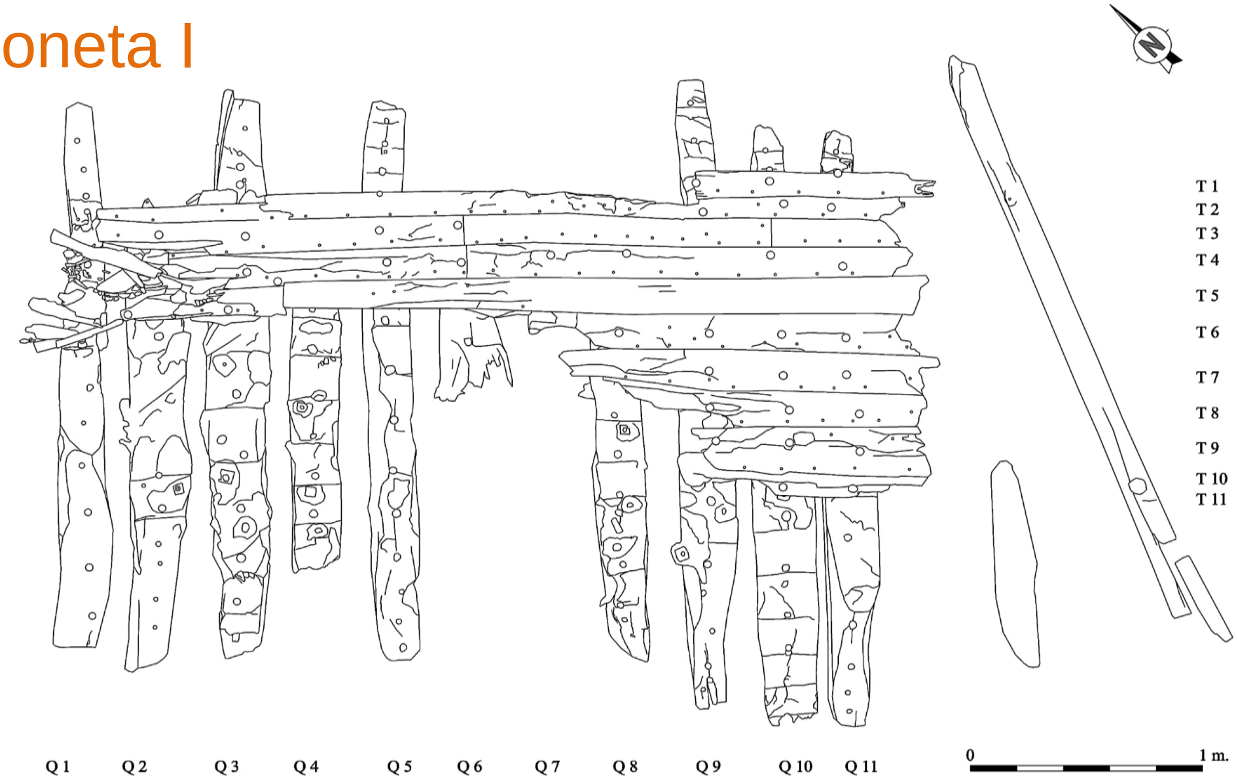
Construction Traits
Maststep – Wood block.
Floor/futtock connection – Flat horizontal scarves (overlap).
Planking fasteners – Treenails and sq. iron nails.
Caulking – Moss
Sheathing – N/A
Keel/sternpost connection – N/A.

Design Traits
Hull shape – sharp bottom, hard bilge, straight sides .
Construction marks –
Evidence for rising and narrowing –

Notes –

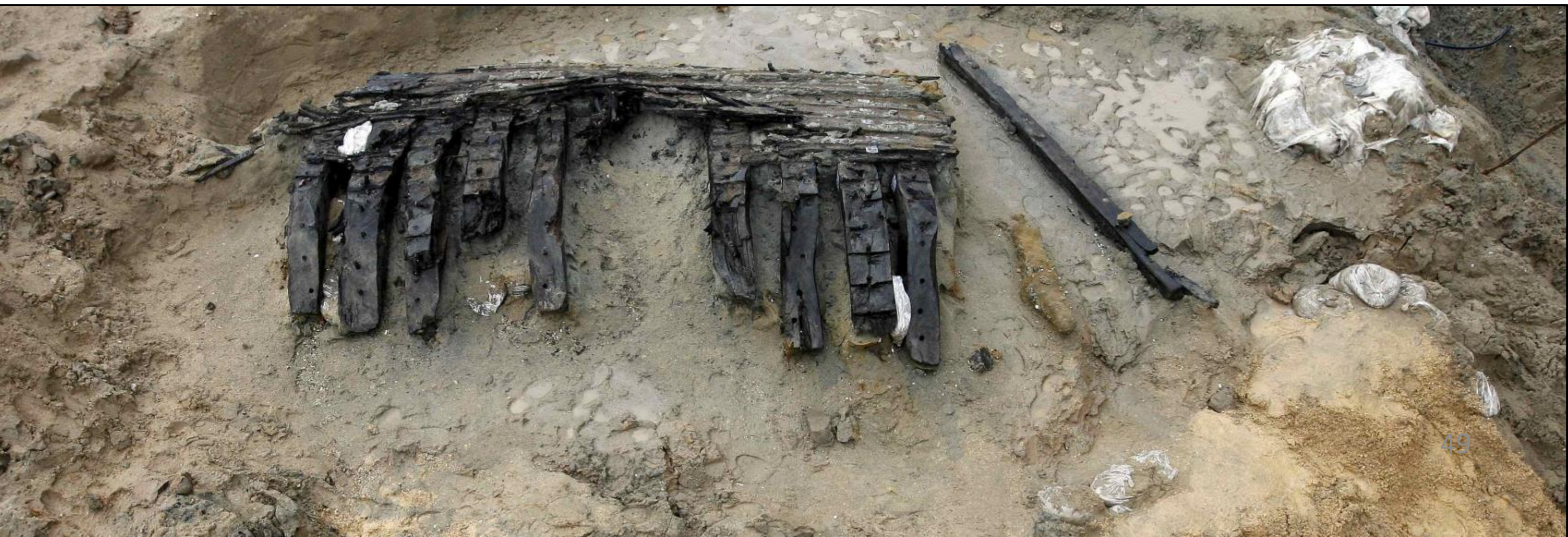
Ref:
L'Hour, M. and Veyrat, E., 1989, A mid-15th century clinker boat off the north coast of France, the Aber Wrac'h I wreck: A preliminary report. *IJNA* **18**.4, 285-298.

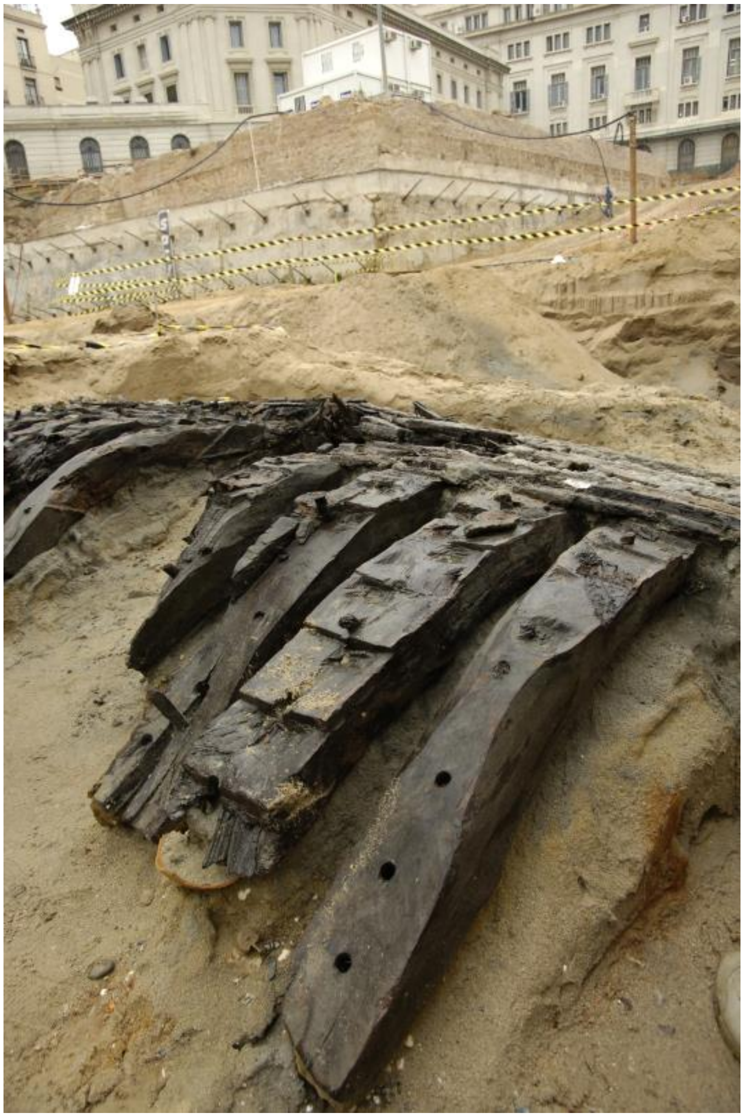
Barceloneta I


N
T 1
T 2
T 3
T 4
T 5
T 6
T 7
T 8
T 9
T 10
T 11
Q 1
Q 2
Q 3
Q 4
Q 5
Q 6
Q 7
Q 8
Q 9
Q 10
Q 11
0
1 m.

Fundamentals

Chronology: 1410-1439
Place built – Basque Country (Spain)?.
Place lost – Barcelona (Spain).
Preserved – 4.2 x 2.77 m
Length reconstructed – 20-25 m; Beam reconstructed – ? m
Keel length – N/A
Keel section (s/m) – N/A
Keelson (s/m) – N/A
Floors section (s/m) – floors ? x ? cm
R&S – 8-17 cm
Plank thickness – 2 cm





Construction Traits
Maststep – N/A
Floor/futtock connection – Treenails?.
Planking fasteners – Treenails and sq. iron nails.
Caulking – Moss
Sheathing – N/A
Keel/sternpost connection – N/A

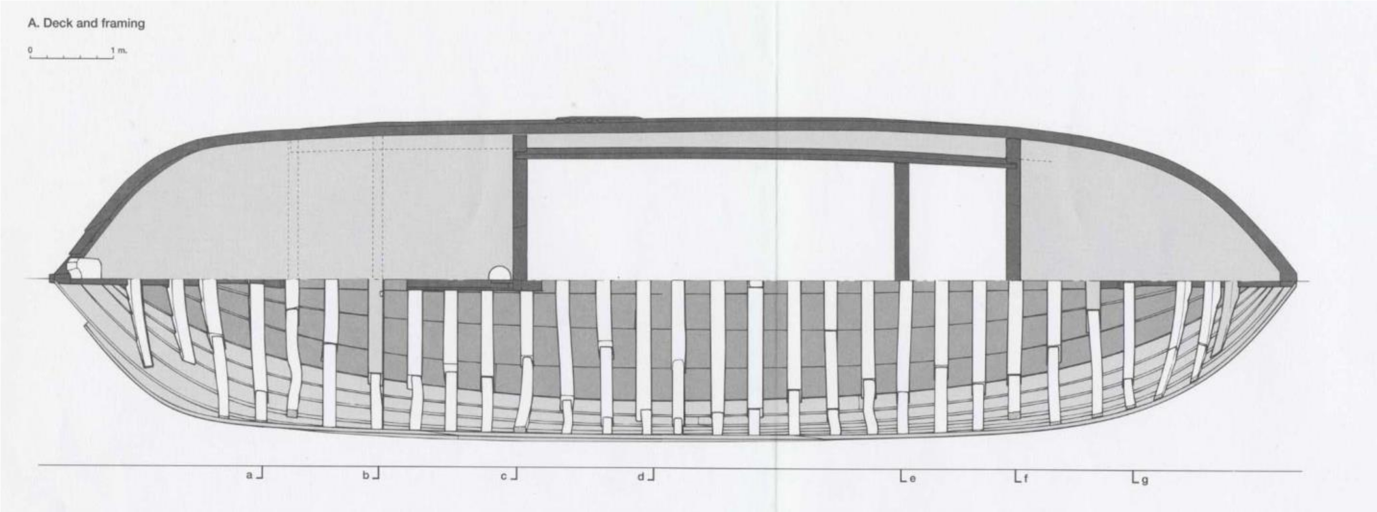
Design Traits
Hull shape – Flat bottom, 2 arcs?
Construction marks –
Evidence for rising and narrowing –

Notes – Barceloneta I was a clinker built ship. The overlap surface of the hull planks covers between 5 and 7 cm.

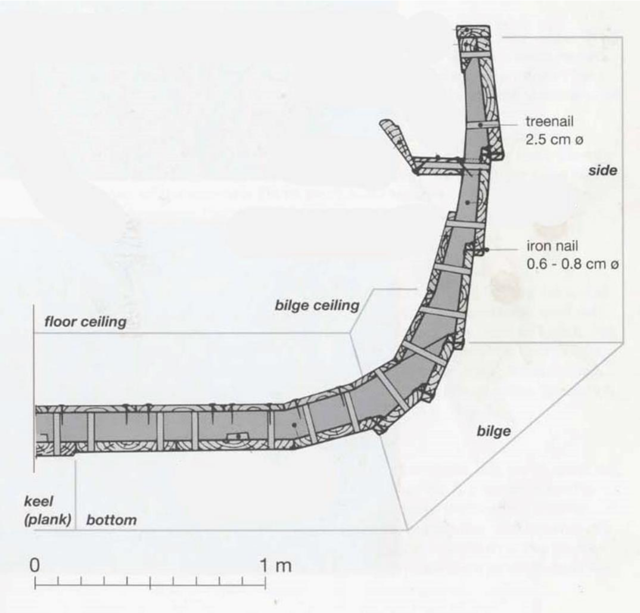
Refs:

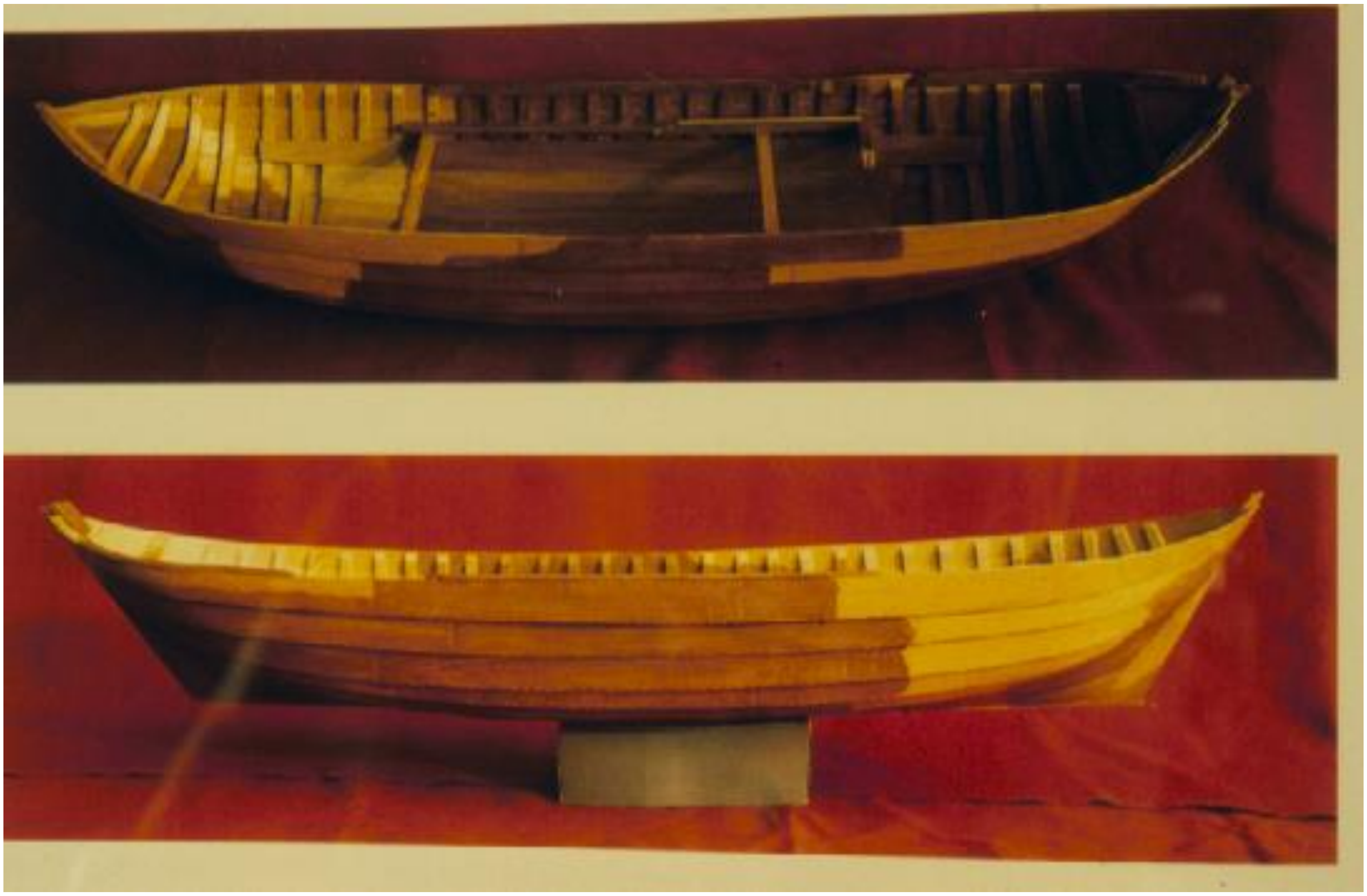
Soberon, M., Pujol, M., Llergo, Y., Riera, S., Juliá, R. y Domínguez, M., 2012. El Barceloneta I. Una embarcación medieval a tingladillo en Barcelona. *Itsas Memoria. Revista de Estudios Marítimos del País Vasco*, **7**, 411-422.

Almere Cog


A. Deck and framing
0
1 m.
a
b
c
d
e
f
g

Fundamentals
Chronology: 1420-1430
Place built – Netherlands.
Place lost – Almere (Netherlands).
Preserved –the vessel is very well preserved, although flattened.
Length reconstructed – 15.95 m (not including the missing rudder, which should add some length); Beam reconstructed – 3.96 m (moulded beam); 4.20 m (extreme beam).
Keel length – 9.94 m.
Keel section (s/m) – 32 x 6.5 cm.
Floors section (s/m) – 15-21 x 13 cm.
R&S – N/A.
Plank thickness – 4.5 cm.


treenail
2.5 cm ø
side
iron nail
0.6 - 0.8 cm ø
bilge ceiling
floor ceiling
bilge
keel
(plank)
bottom
0
1 m



Construction Traits

Maststep – Wood block.
Floor/futtock connection – Treenails?.
Planking fasteners – Sq. iron nails.
Caulking – Moss, lath, and sintels.
Sheathing – N/A.
Keel/sternpost connection – Dutch.

Design Traits

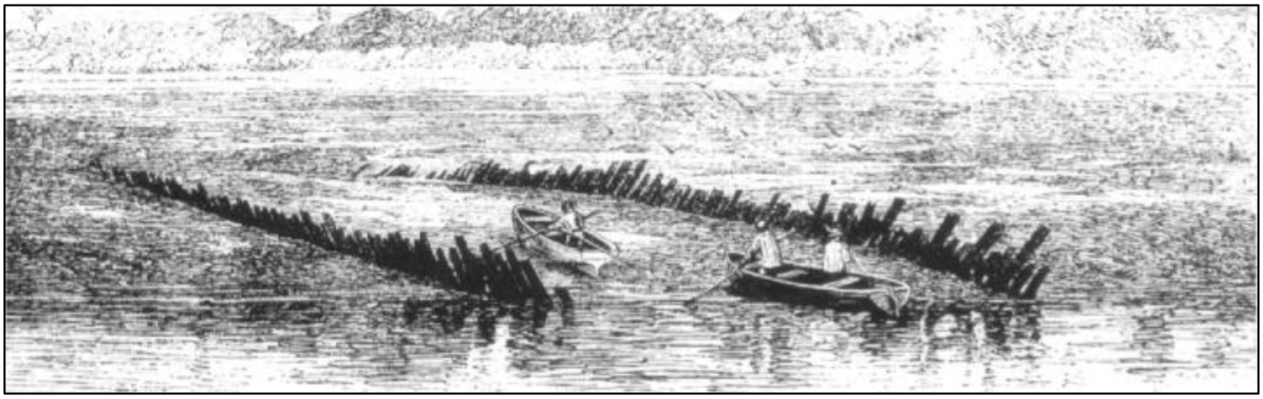
Hull shape – Flat bottom, hard chine, straight sides.
Construction marks –
Evidence for rising and narrowing –

Notes –

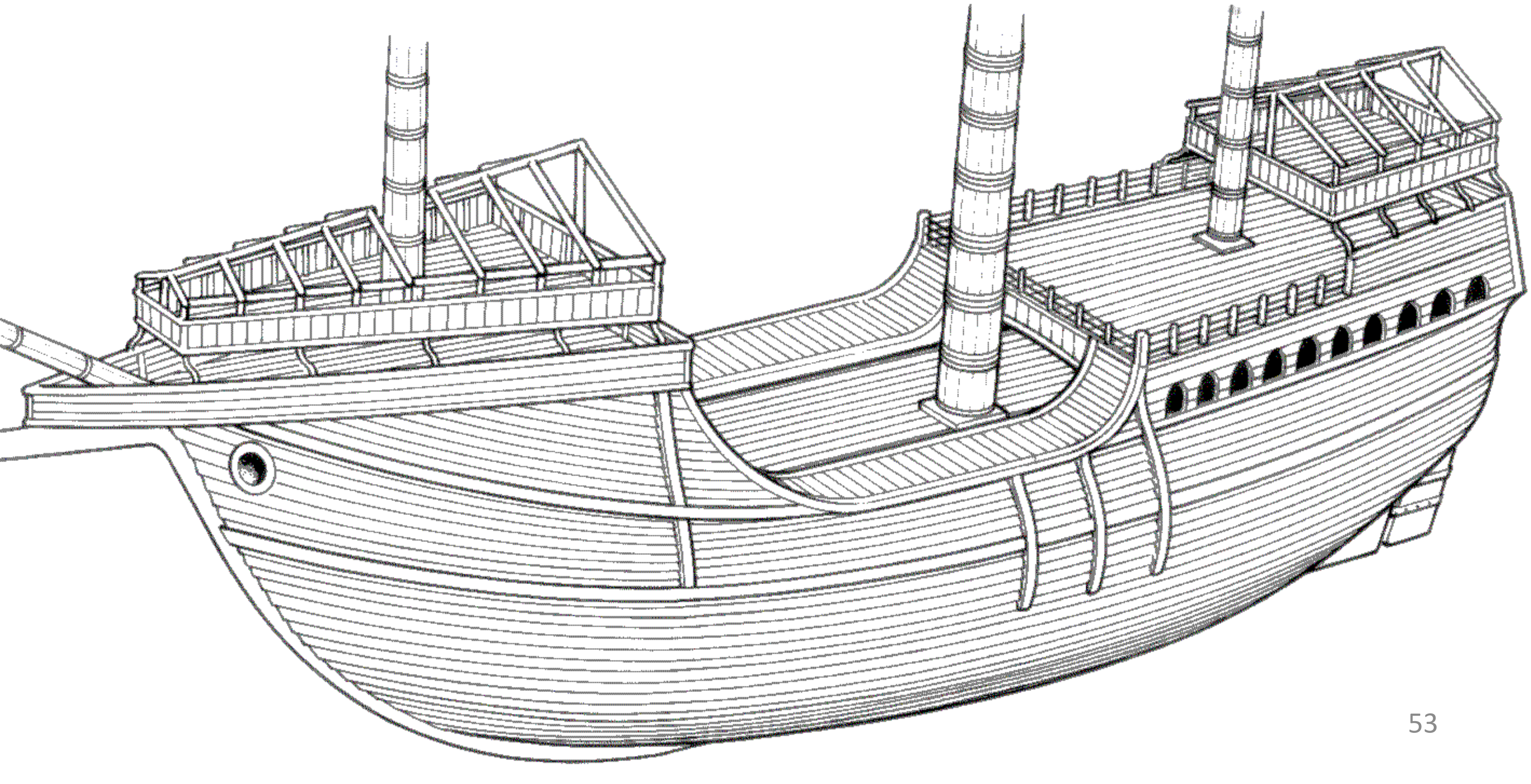
Ref:

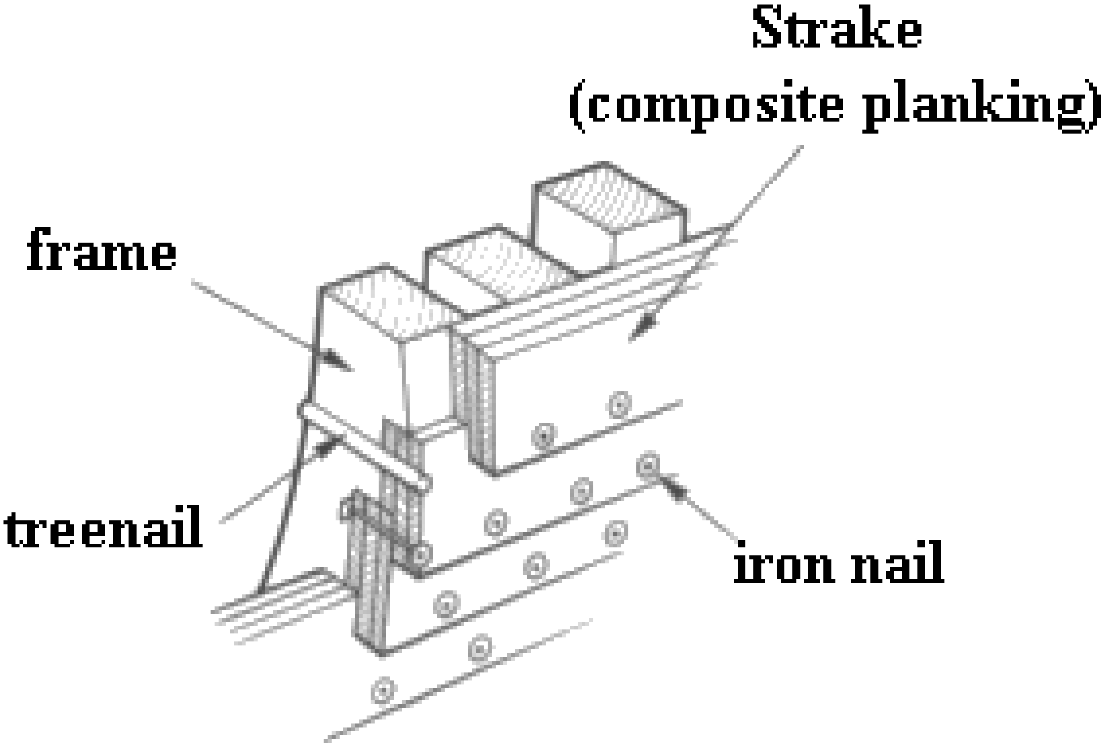
Hocker, F. M. and Vlierman, K., 1996, *A small cog*, *wrecked on the Zuiderzee in the early fifteenth century*. Lelystad.

Grace Dieu



Fundamental
Chronology: 1418-1439
Place built – Southampton (England).
Place lost – Bursledon (England).
Preserved – 41.15 x 11.43 m ?.
Length reconstructed – Between 50 and 60 m; Beam reconstructed – 15 m.
Keel length – 38.10 m.
Keel section (s/m) – 36 x 46 cm.
Keelson section (s/m) – 28 x 10 cm.
Floors section (s/m) – 28 x 20 cm.
R&S – 40 cm (centre-to-centre).
Plank thickness – 12 cm?





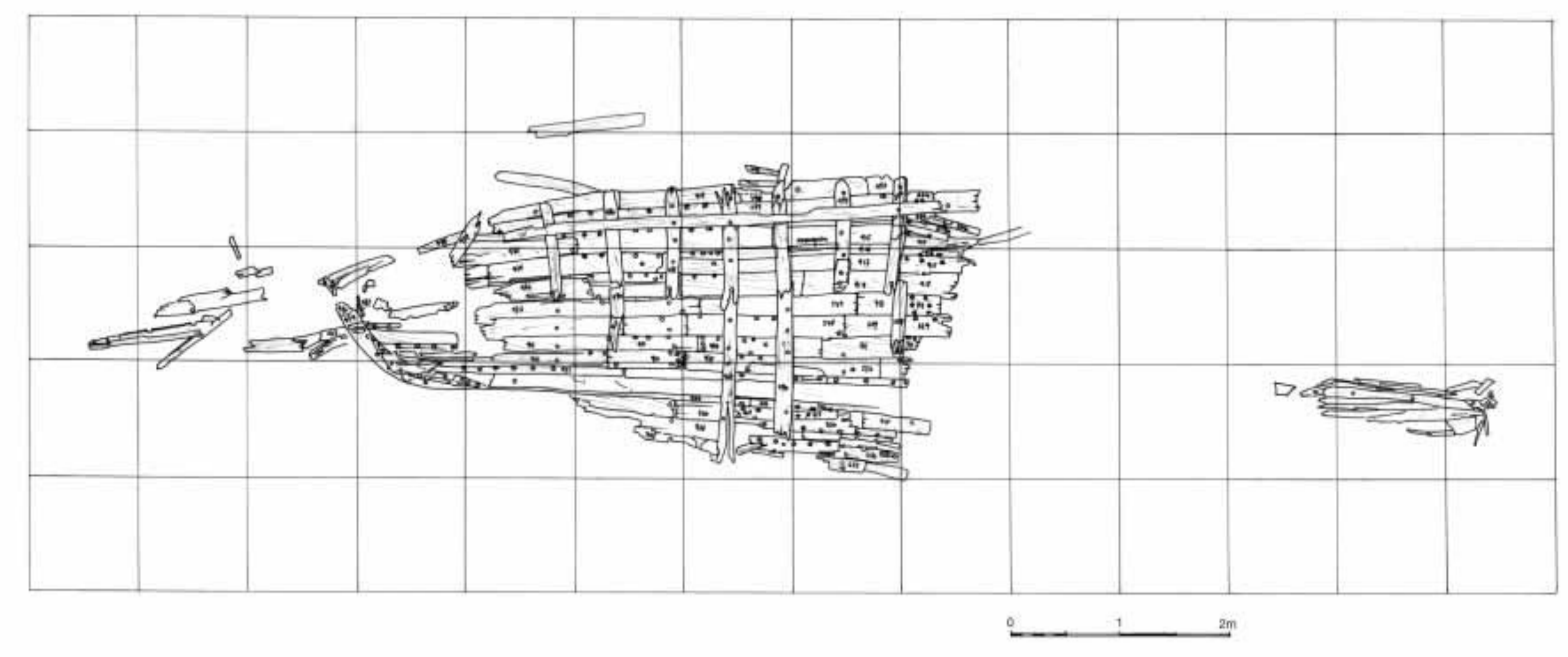
Construction Traits
Maststep – Wood block.
Floor/futtock connection – Overlap w/ diagonal scarfs and treenails?.
Planking fasteners – Sq. iron nails.
Caulking – Moss and tar.
Sheathing – N/A.
Keel/sternpost connection – N/A.

Design Traits
Hull shape – Undetermined.
Construction marks –
Evidence for rising and narrowing -

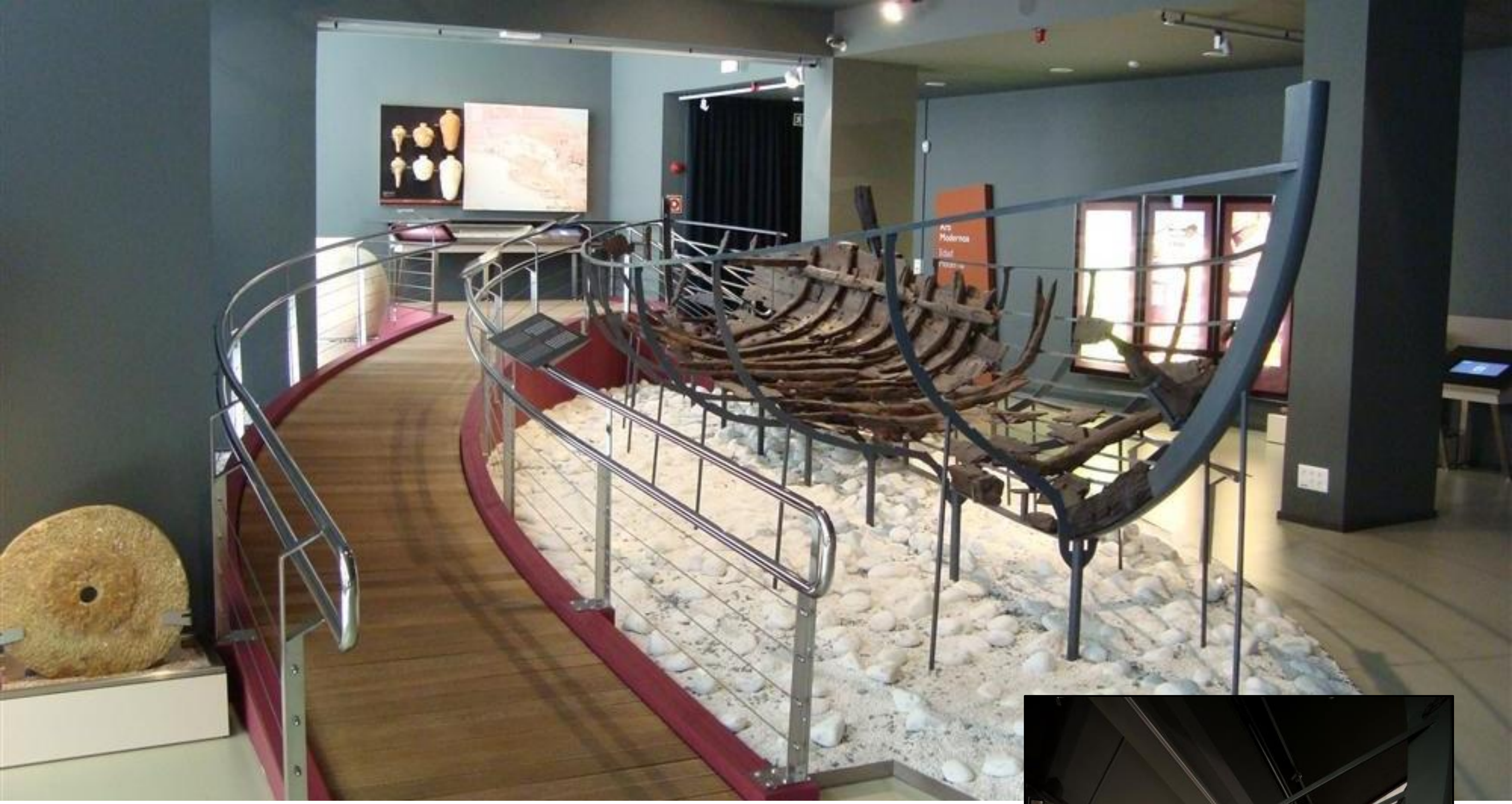
Notes – Luca di Maso degli Albizzi's historic account mentions that this ship was decked, and give some of the measures. The overall lenght was between 53 and 56 m, a width of 15.4. The *Grace Dieu* had a 15 m forecastle above the weather deck, and a capacity of 1.400-1.551 tons. The main mast was 59-62 m high and 6.3-6.7 m in circunference at the main deck.

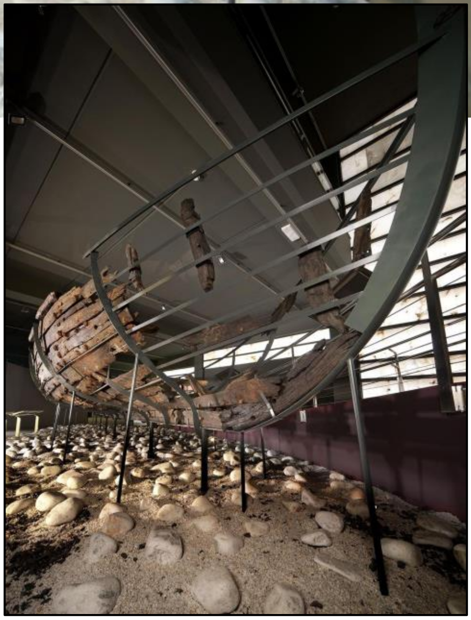
Ref:
Anderson, R. C., 1934, The Burlesdon Ship. *Mariner's mirror*, **20**, 158-170; Pryrnne, M.W., 1977, The Dimensions of the Grace Dieu (1418). *Mariner's mirror*, **63**, 6-7; Friel, I., 1993, Henry's V Grace Dieu and the Wreck in the R. Hamble near Bursledon, Hamshire. *IJNA*, **22**, 3-19; Clark, R., 1993. Recent work on the R. Hamble Wreck near Bursledon, Hamshire. *IJNA*, **22**, 21-44; McGrail, S. 1993. The Future of the Designated Wreck Site in the R. Hamble. *IJNA*, **22**, 45-51.

Urbieta



Fundamental
Chronology: 1450-1460
Place built – Basque Country (Spain)?.
Place lost – Gernika (Basque Country, Spain).
Preserved – 12 x 5 m
Length reconstructed – 11 m; Beam reconstructed – 2.72 m.
Keel length – 5 m.
Keel section (s/m) – 8 x 13 cm.
Keelson (s/m) – N/A
Floors section (s/m) – floors 10-14 x 6-14.5 cm; futtoks 12-13 x 6-7 cm.
R&S – 35-48 cm
Plank thickness – 2 cm





Construction Traits
Maststep – N/A
Floor/futtock connection – Vertical flat scarves w/ treenails.
Planking fasteners – Treenails and sq. iron nails.
Caulking – Moss
Sheathing – N/A
Keel/sternpost connection – N/A

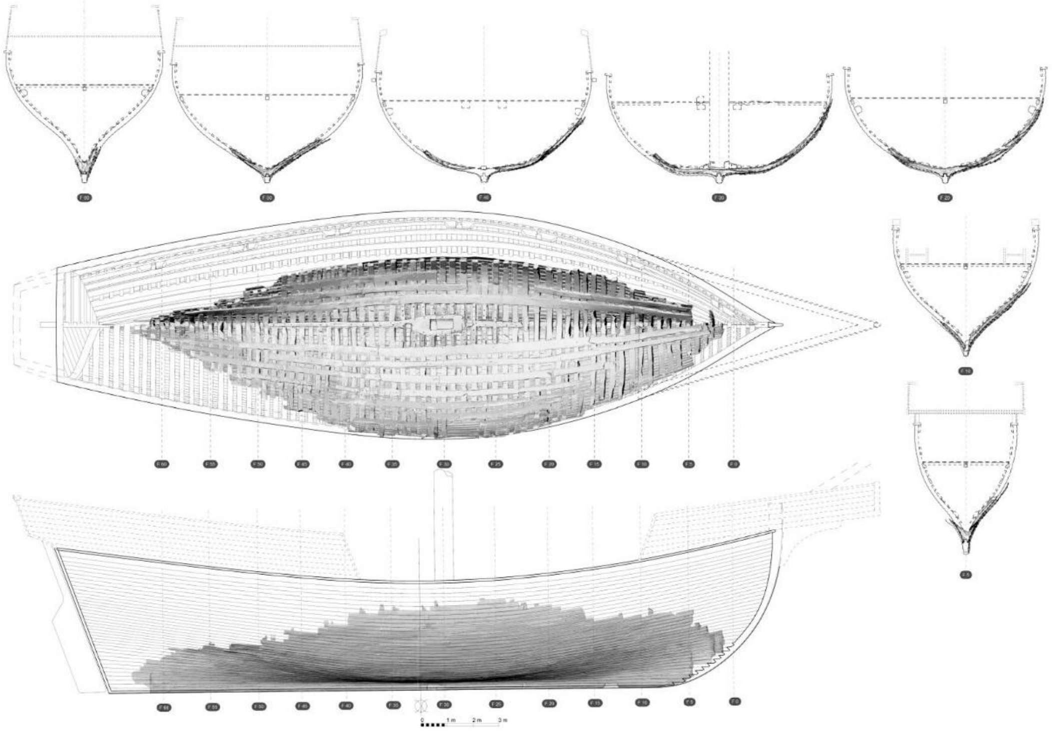
Design Traits
Hull shape – Flat bottom, 1 arc?
Construction marks –
Evidence for rising and narrowing –

Notes – Urbieta was a clinker built coque. The overlap surface of the hull planks covers 3 cm.

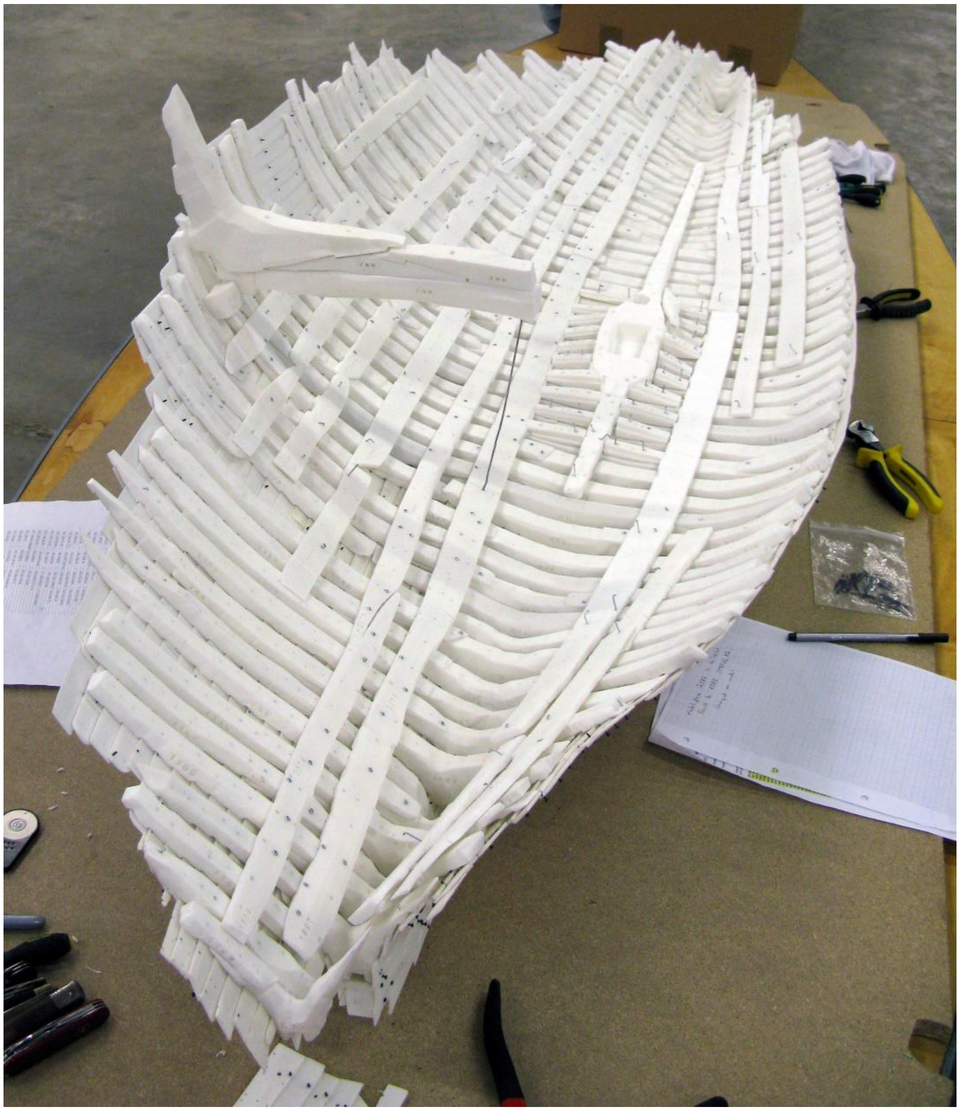
Refs:

Rieth, E., 2006. L’épave d’Urbieta (Gernika): une embarcation à clin du milieu du XVe siècle. Étude préliminaire. *Itsas Memoria. Revista de Estudios Marítimos del País Vasco*, **5**, 603-616.

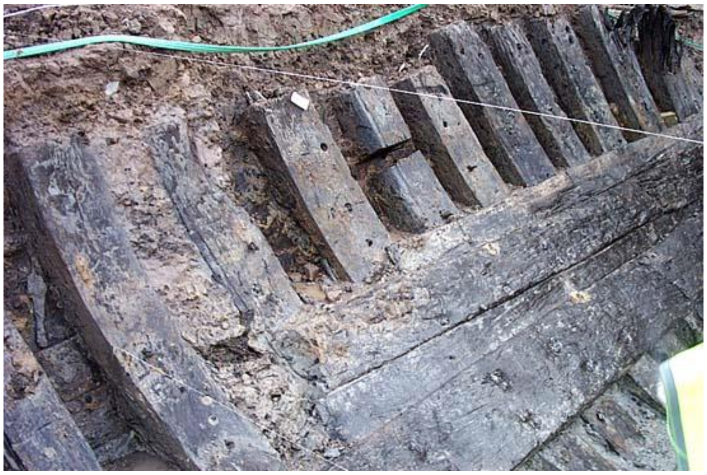
Newport


F 60
F 55
F 50
F 45
F 40
F 35
F 30
F 25
F 20
F 15
F 10
F 5
F 0
0
1 m
2 m
3 m

Fundamental
Chronology: 1450-1469
Place built – Basque country (Spain)?
Place lost – Newport (Wales, United Kingdom)
Preserved – 22.5 x 7.65 m
Length reconstructed – 35 m; Beam reconstructed – 8 m.
Keel length – 19.8 m.
Keel section (s/m) – 18-27 x 17-24 cm.
Floors section (s/m) –21.1 x 25.6 cm.
R&S – 0.37 cm (centre-to-centre).
Plank thickness – 11-33 cm.



Construction Traits
Maststep – Expanded keelson
Floor/futtock connection – horizontally splayed scarfs.
Planking fasteners – Treenails and sq. Iron nails.
Caulking – Animal hair.
Sheathing – N/A.
Keel/sternpost connection – N/A

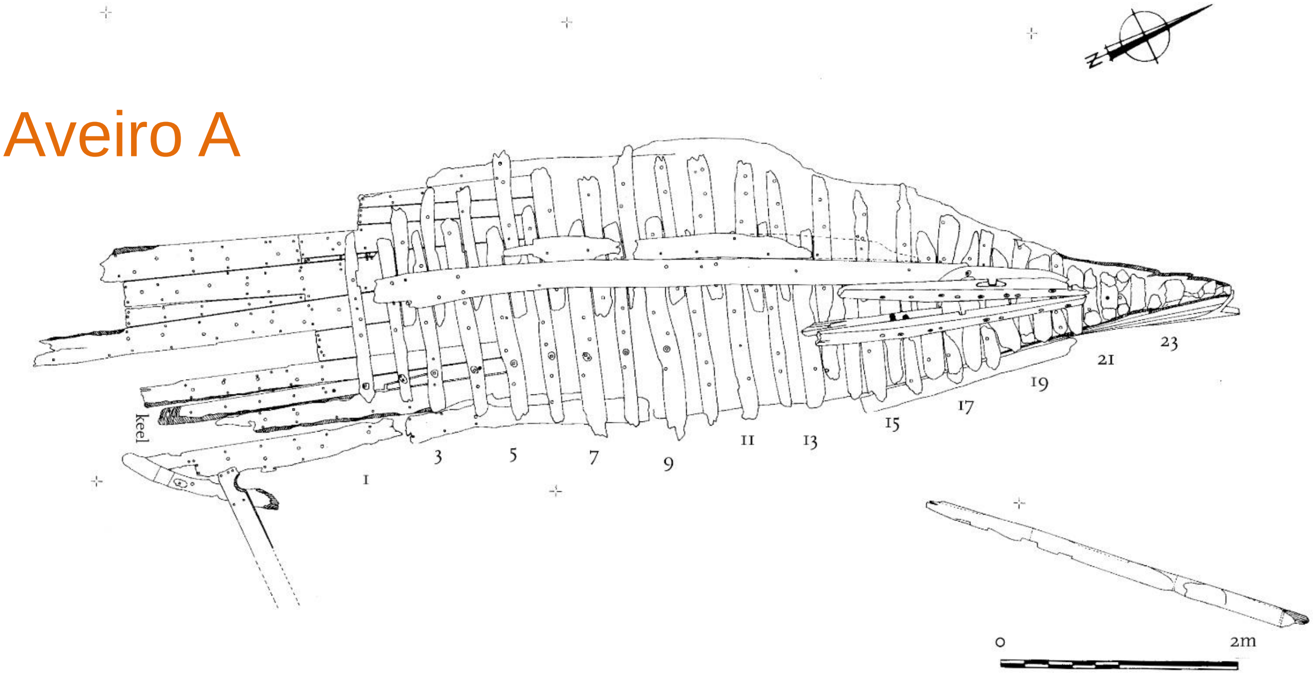


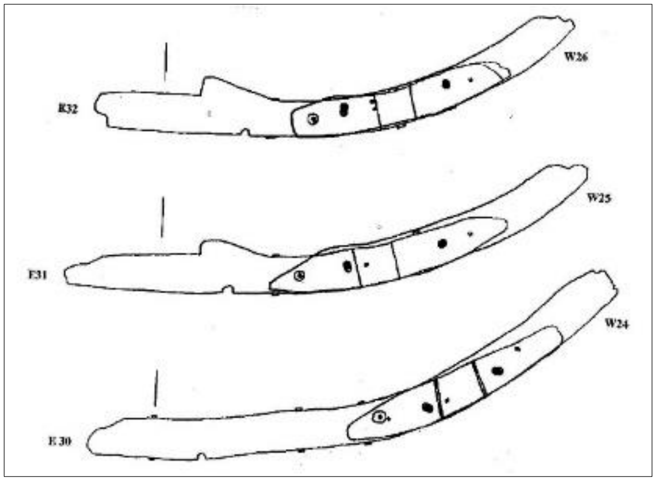
Design Traits
Hull shape – Flat + 4 arcs ?
Construction marks –
Evidence for rising and narrowing –

Notes –

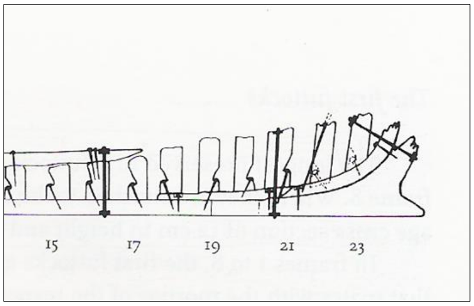
Ref:
Nayling, N. and Jones, T., 2014, The Newport Medieval Ship, Wales, United Kingdom. *International Journal of Nautical Archaeology* **43**.2, 239-278.

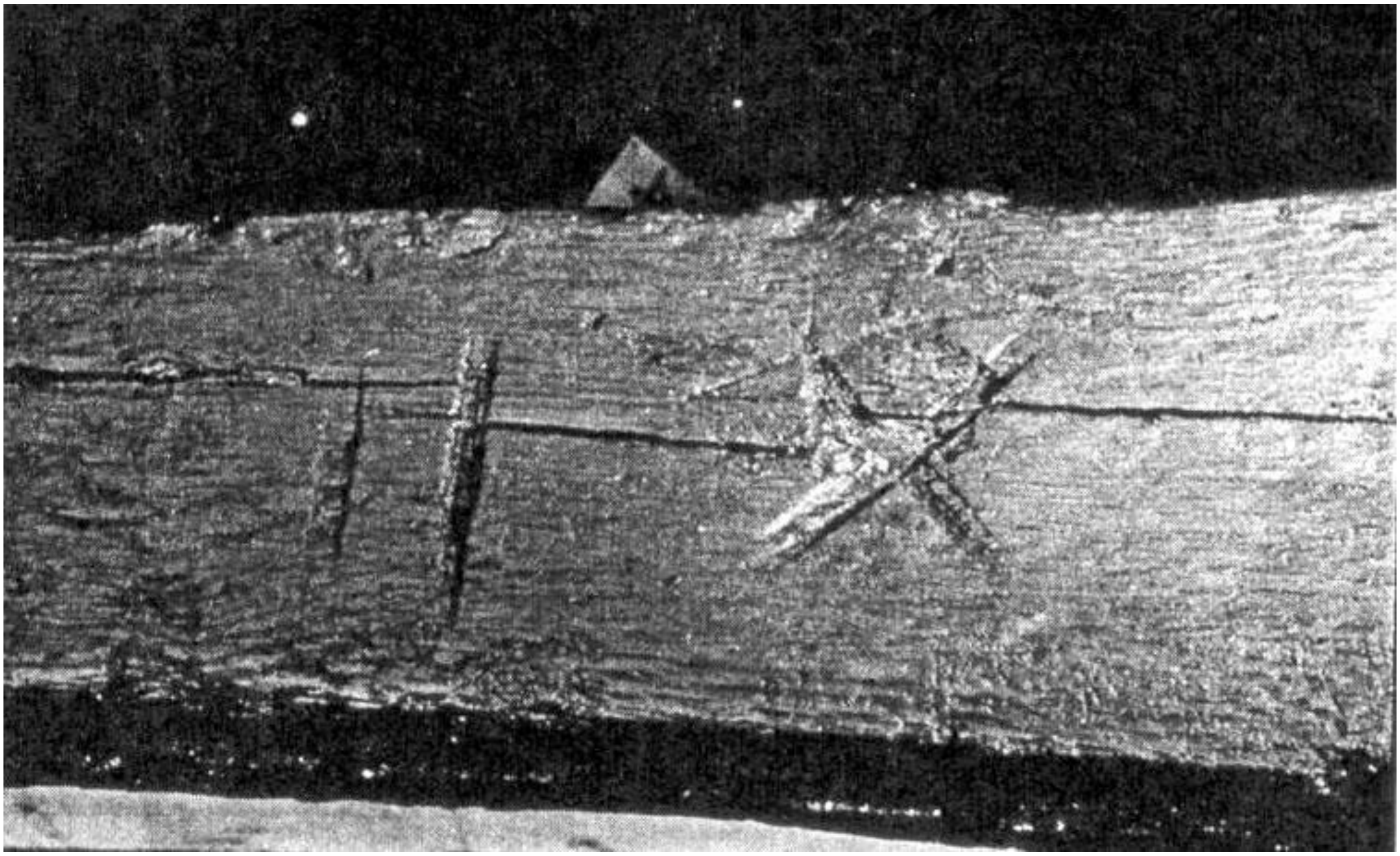
Aveiro A


N
keel
1
3
5
7
9
11
13
15
17
19
21
23
0
2m


W26
E32
W25
E31
W24
E30

Fundamental
Chronology: 1450-1500
Place built – Portugal ?
Place lost –
Preserved – 10.4 x 12.5 m
Length reconstructed – 16.6 m; Beam reconstructed – 6.16 m
Keel length – 12.32 m? (9.15 m preserved)
Keel section (s/m) – 12 x 12 cm
Floors section (s/m) –12 x 12.5 cm
R&S – 33 cm
Plank thickness – 5.5 cm
Caulking – ?
Sheathing – ?
Maststep – Mediterranean
Floor/futtock connection – dovetail w/ 2 treenails & 2 iron nails.
Planking fasteners – Treenails and iron nails (sq.)
Keel/sternpost connection – Vertical scarf
Hull shape – ?
Notes – Grooves on the keelson indicate that this vessel was decked.


15
17
19
21
23



Construction Traits

Maststep – Mediterranean
Floor/futtock connection – dovetail w/ 2 treenails & 2 iron nails.
Planking fasteners – Treenails and iron nails (sq.)
Caulking – ?
Sheathing – ?
Keel/sternpost connection – Vertical scarf

Design Traits

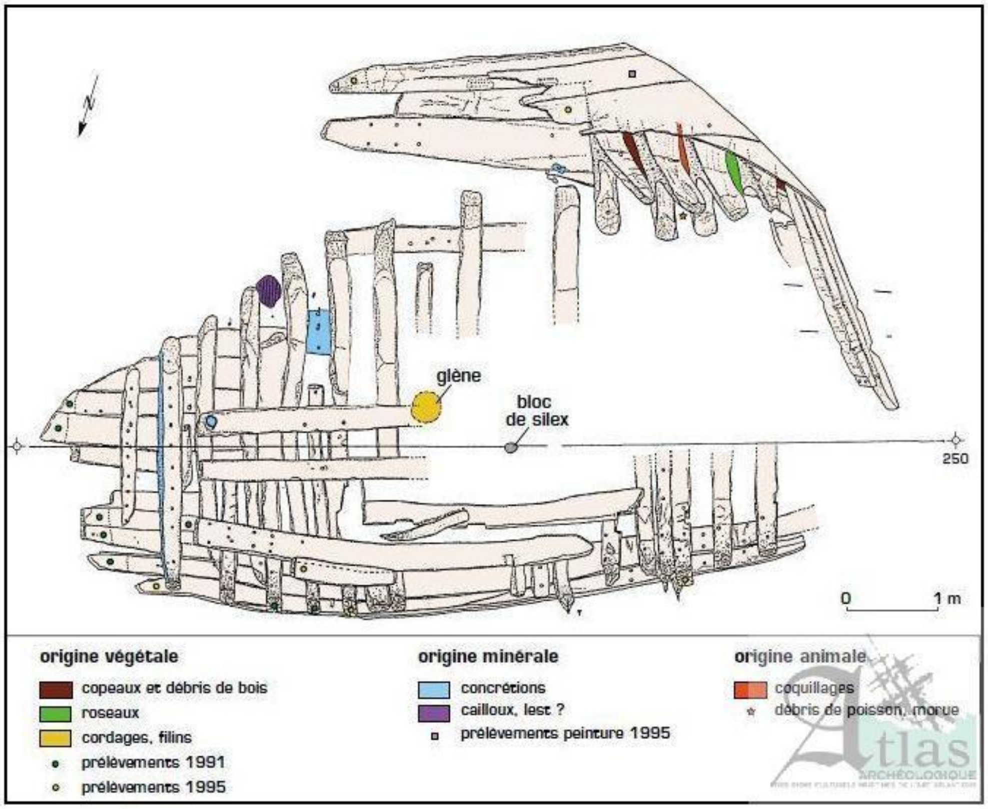
Hull shape – ?
Construction marks – Roman Numerals present
Evidence for rising and narrowing -

Notes – Grooves on the keelson indicate that this vessel was decked.

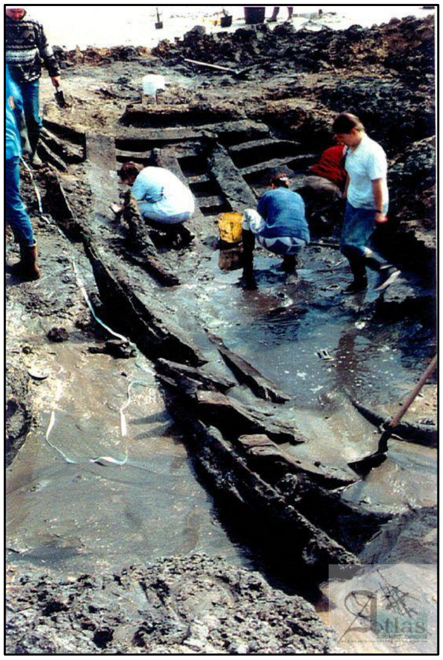
Ref:

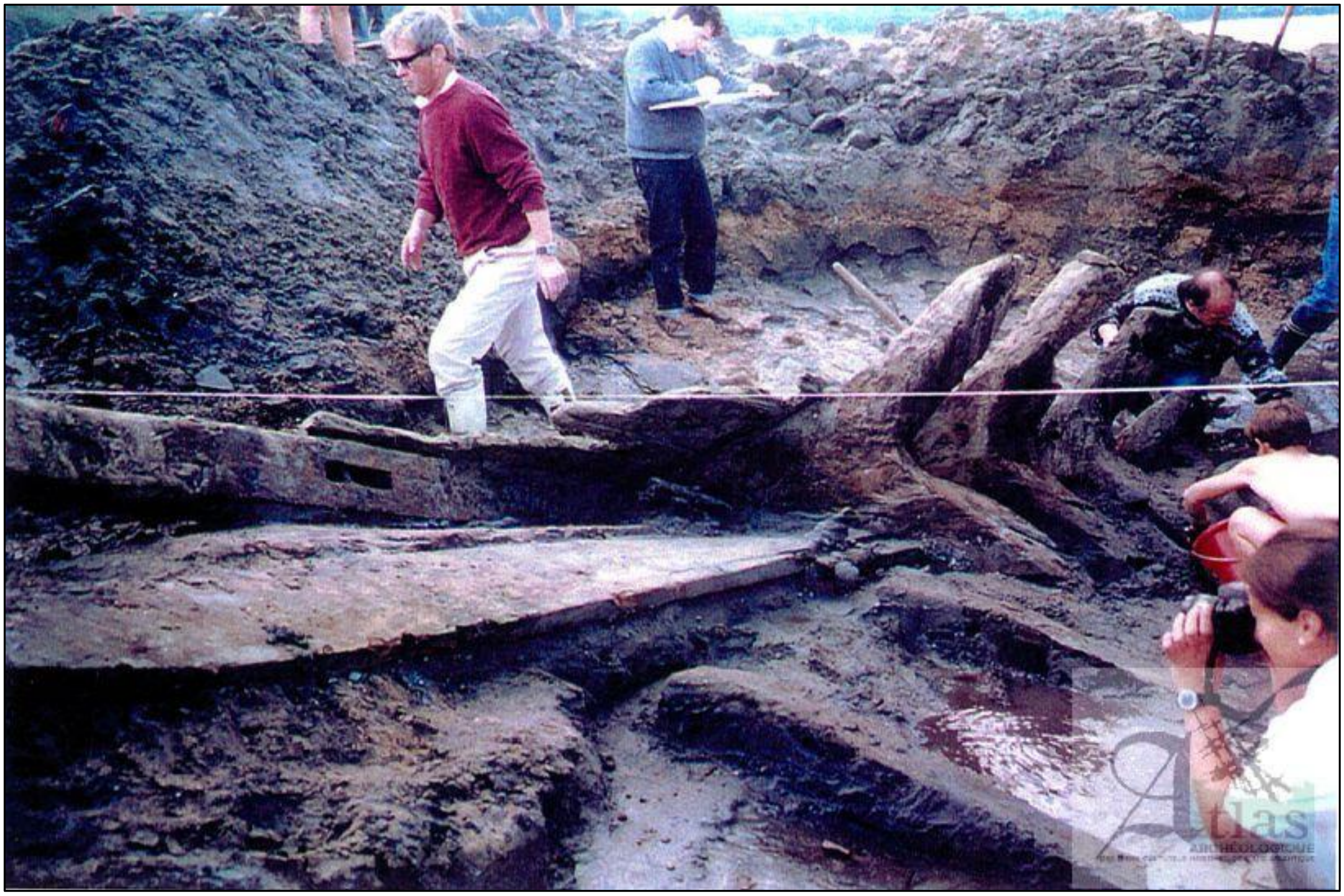
Alves, F., Rodrigues, P., Aleluia, M., Rodrigo, R. and Garcia, C., 2001, Ria de Aveiro A: a shipwreck from Portugal dating to the mid-15th century; a preliminary report. *International Journal of Nautical Archaeology* **30**.1, 12-36.

Trez-Malaouen 2


N
glène
bloc de silex
250
0
1 m
origine végétale
copeaux et débris de bois
roseaux
cordages, filins
prélèvements 1991
prélèvements 1995
origine minérale
concrétions
cailloux, lest ?
prélèvements peinture 1995
origine animale
coquillages
débris de poisson, morue
Atlas archéologique

Fundamentals
Chronology: 1475-1525
Place built – Brittany
Place lost – France
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – 20 m (estimated)
Keel section (s/m) – 20 x 30 cm
Keelson –
Floors section (s/m) – 25 x 25 cm
R&S –
Plank thickness – 5-10 cm





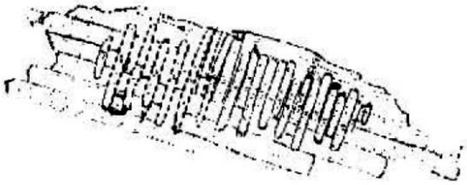
Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners – square iron nails and treenails
Caulking –
Sheathing –
Keel/sternpost connection –

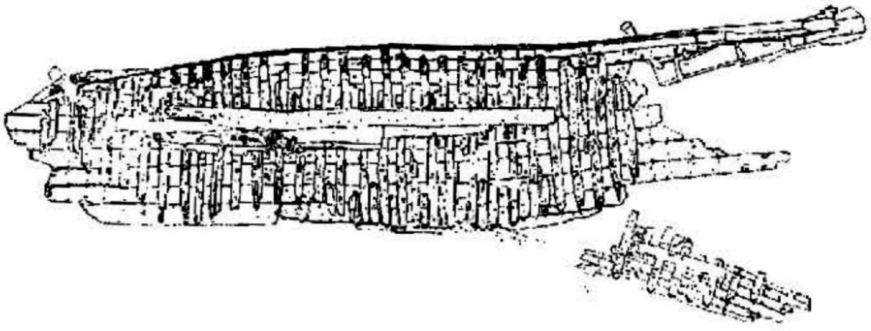
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

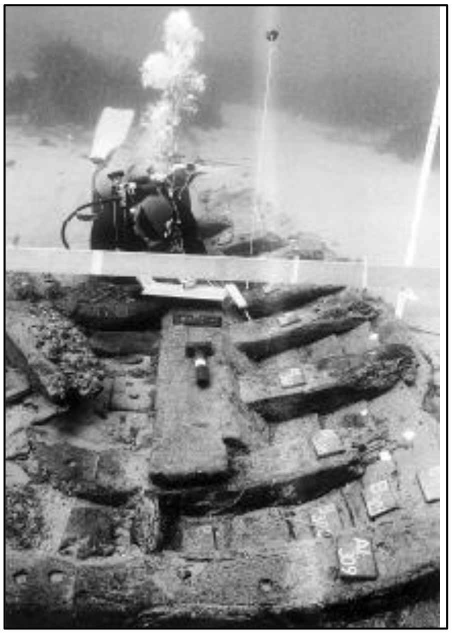
Ref:
Donguy, Jean-René et Philippe, Jean-Pierre, 2007. « L'épave de Trez-Malaouen, » *Chasse Marée* n°201, Décembre 2007, p.33 à 41.
http://www.atlasponant.fr/fiche/Site/029TRM002/#fiche=/fiche/Site/029TRM002/

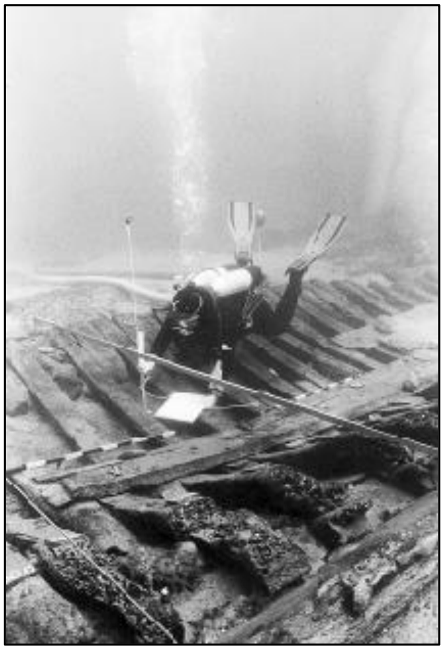
Cavalaire-sur-Mer





Fundamental
Chronology: 1479.
Place built – Basque Country (Spain)?.
Place lost – Cavalaire-sur-Mer (Provence, France).
Preserved – 18 m x ?.
Length reconstructed – 18.8 m?; Beam reconstructed – 5 m.
Keel length – 14.20 m.
Keel section (s/m) – N/A.
Floors section (s/m) – 17 x 17 cm at the bilge; 14 x 14 at the beam.
R&S – N/A.
Plank thickness – 5.5 cm (Carvel); 1.5 cm (Lapstrake).





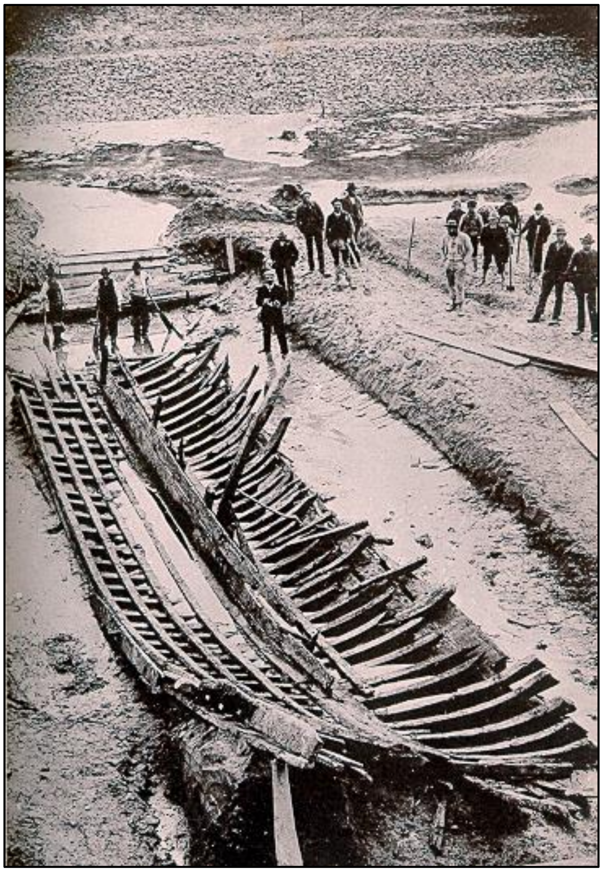
Construction Marks
Maststep – N/A.
Floor/futtock connection – “Mixed” framing style: Mortise-and-tenon, treenails and iron nails (Central frames); simply overlap (Bow and stem frames).
Planking fasteners – Hull planks were carvel below the water line, and lapstrake above the water line.
Caulking – N/A.
Sheathing – N/A.
Keel/sternpost connection – N/A.

Design Traits
Hull shape – Flat bottom, 3 arcs
Construction marks –
Evidence for rising and narrowing -

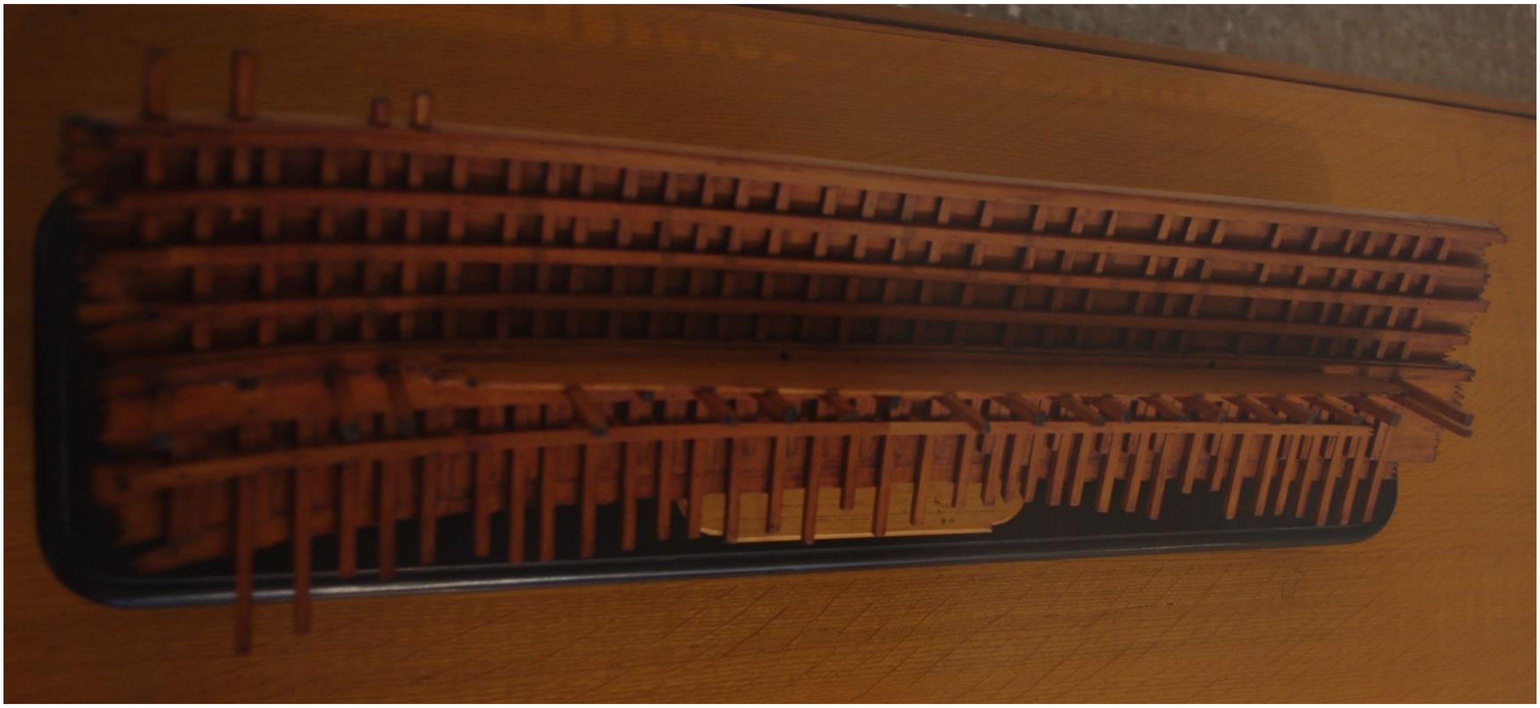
Notes –

Ref:
Loewen, B., Delhaye, M., 2006, “Oak growing, hull design and framing style. The Cavalaire-sur-Mer wreck, c. 1479”. In Blue, L., Hocker, F., Englert a.(eds.) *Connected by the Sea. Proceedings of the Tenth International Symposium on Boat and Ship Archaeology, Roskilde,* 99-104; Delhaye, M, 1998, L’épave médievale de Cavalaire: un exemple de l’évolution navale architecturale avant la Renaissance. *Itsas Memoria. Revista de Estudios Marítimos del País Vasco*, 2, 43-48.

Contarina 2



Fundamentals
Chronology: 1475-1525
Place built – Italy
Place lost –
Preserved – 11.4 x 2.5 m
Length reconstructed – 20 m; Beam reconstructed – 7 m
Keel length – 16.2 m
Keel section (s/m) – 8 x 7 cm
Keelson – N/A
Floors section (s/m) – floors 10 x 10 cm
R&S – 20 cm
Plank thickness – 5 cm



Marco Bonino tentative reconstruction.

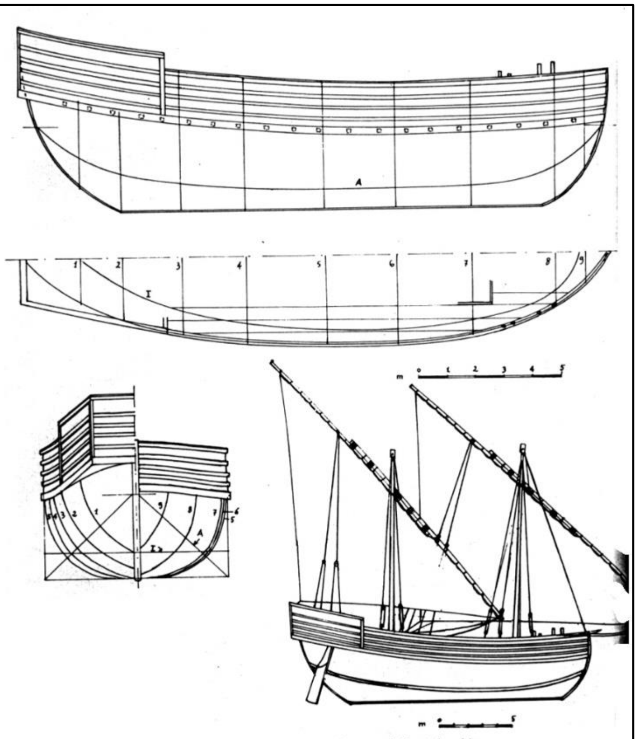


Figure 9. Reconstruction of the second Contarina ship.

Construction Traits
Maststep – N/A
Floor/futtock connection – Overlap w/ iron nails
Planking fasteners –Iron nails (Ø)
Caulking – ?
Sheathing – ?
Keel/sternpost connection – N/A

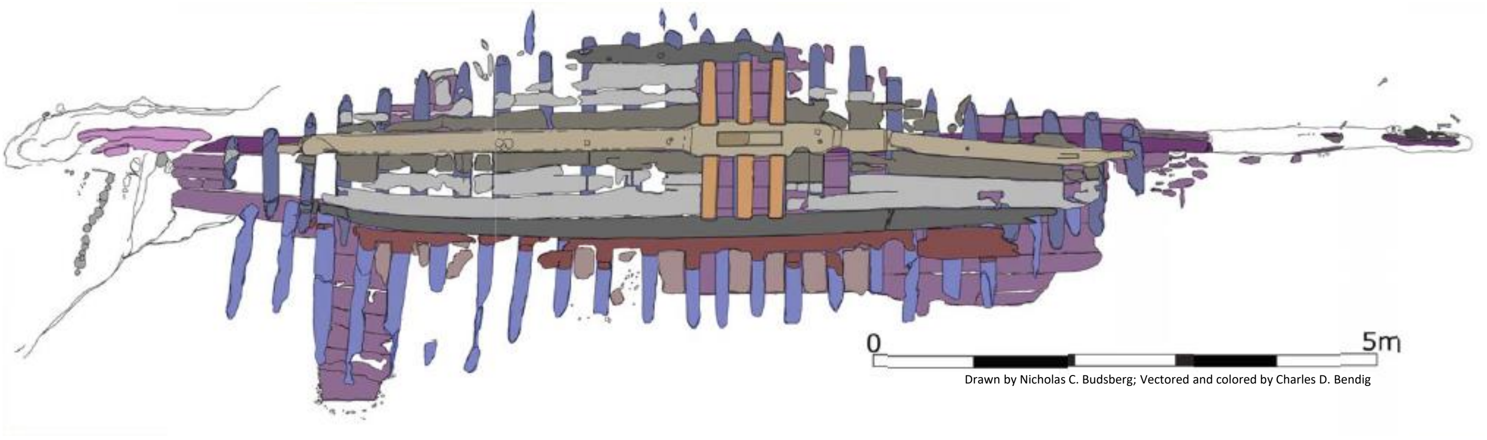
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes –

Ref:

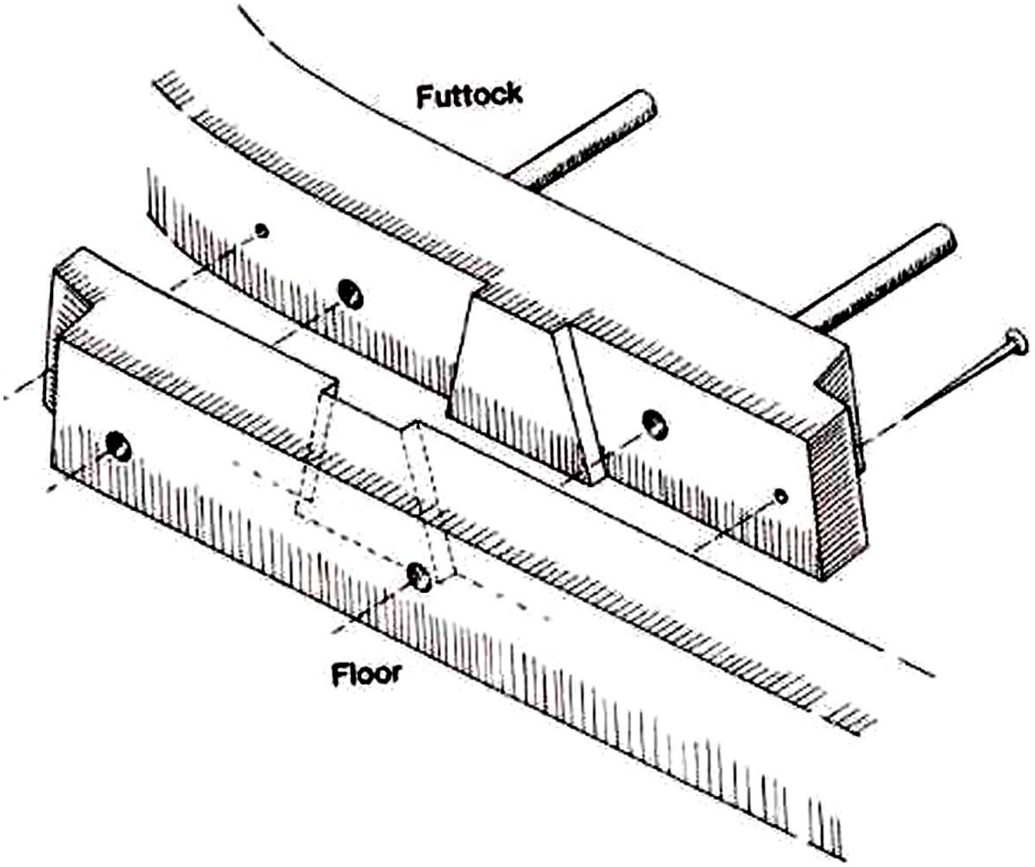
Beltrame, C., 2009, A New View of the Interpretation of the Presumed Medieval Po Delta Wrecks, Italy. *IJNA* **38**.2, 412-417.
Bonino, M., 1978, Lateen-rigged medieval ships. New evidence from wrecks in the Po Delta (Italy) and notes on pictorial and other documents. *International Journal of Nautical Archaeology* **7**.1, 9-28.

Highbourne Cay



Drawn by Nicholas C. Budsberg; Vectored and colored by Charles D. Bendig

Fundamentals
Chronology: 1475-1525
Place built – Spain ?
Place lost –
Preserved – 16 x 4 m
Length reconstructed – 19 m; Beam reconstructed – 5.7 m
Keel length – 12.6 m (estimated)
Keel section (s/m) – 16,5 x 21 cm
Floors section (s/m) –16.5 x 17.5 cm
R&S – 40 cm (central frames closer)
Plank thickness – 6 cm



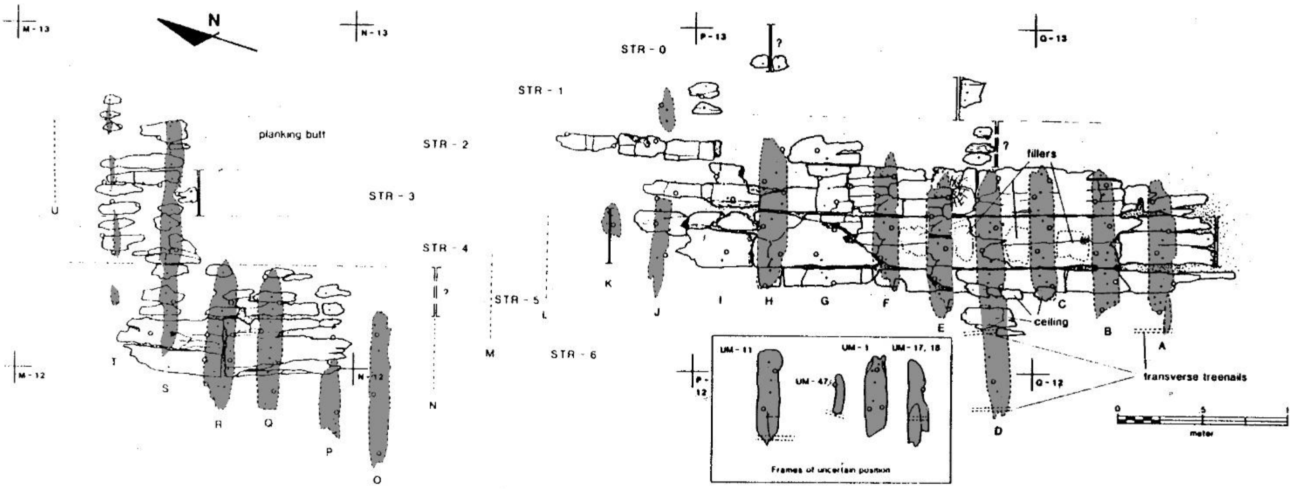
Construction Traits
Maststep – Expanded keelson
Floor/futtock connection – Dovetail scarves, treenails and iron nails
Planking fasteners – Iron Nails (sq.)
Caulking – ?
Sheathing – Lead straps (lower hull)
Keel/sternpost connection - ?

Design Traits
Hull shape – Flat floor + 1 arc?
Construction marks –
Evidence for rising and narrowing –

Notes –

Ref:
Oertling, T. J., 1989, The Highborn Cay wreck: The 1986 field season. *International Journal of Nautical Archaeology* **18**.3, 244-253.

Molasses Reef


M - 13
N
N - 13
P - 13
Q - 13
STR - 0
STR - 1
STR - 2
STR - 3
STR - 4
STR - 5
STR - 6
planking butt
?
fillers
ceiling
transverse treenails
U
T
S
R
Q
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
M - 12
N - 12
P - 12
Q - 12
UM - 11
UM - 47
UM - 1
UM - 17, 18
Frames of uncertain position
0
5
1
meter

Fundamentals

Chronology: 1475-1525

Place built – Portugal ?

Place lost –

Preserved – 11 x 3 m

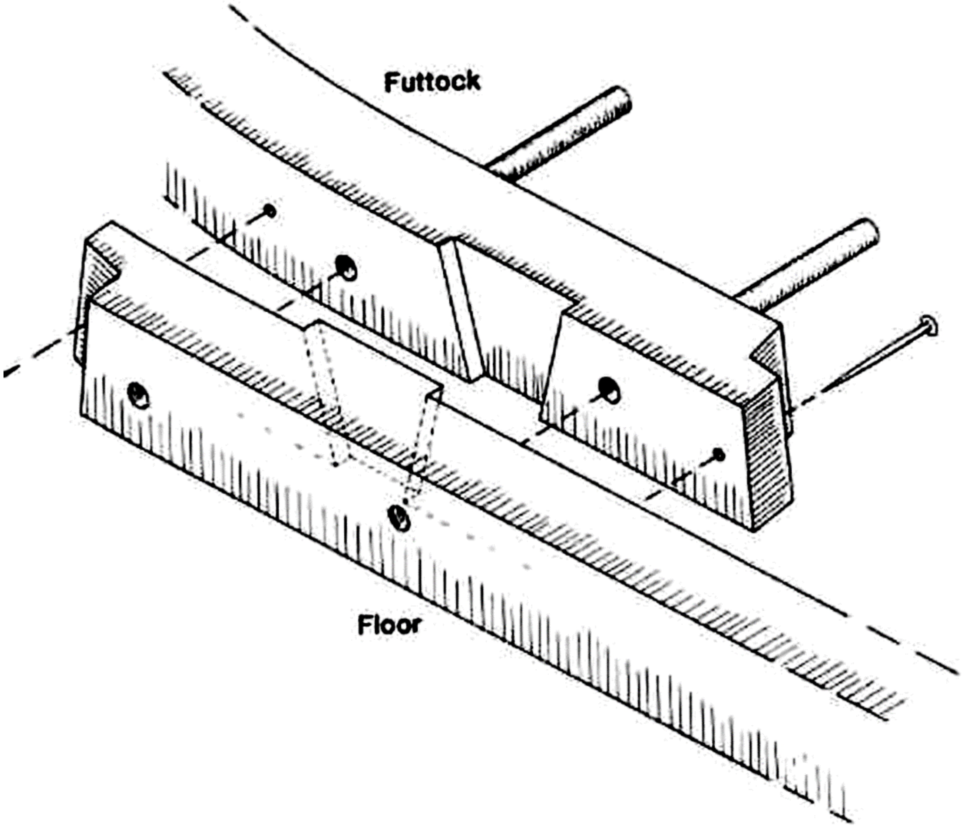
Length reconstructed – 19 m; Beam reconstructed – 5-6 m

Keel length – N/A

Floors section (s/m) – 16 x 16-17 cm

R&S – 32.5 cm

Plank thickness – 4.5 cm



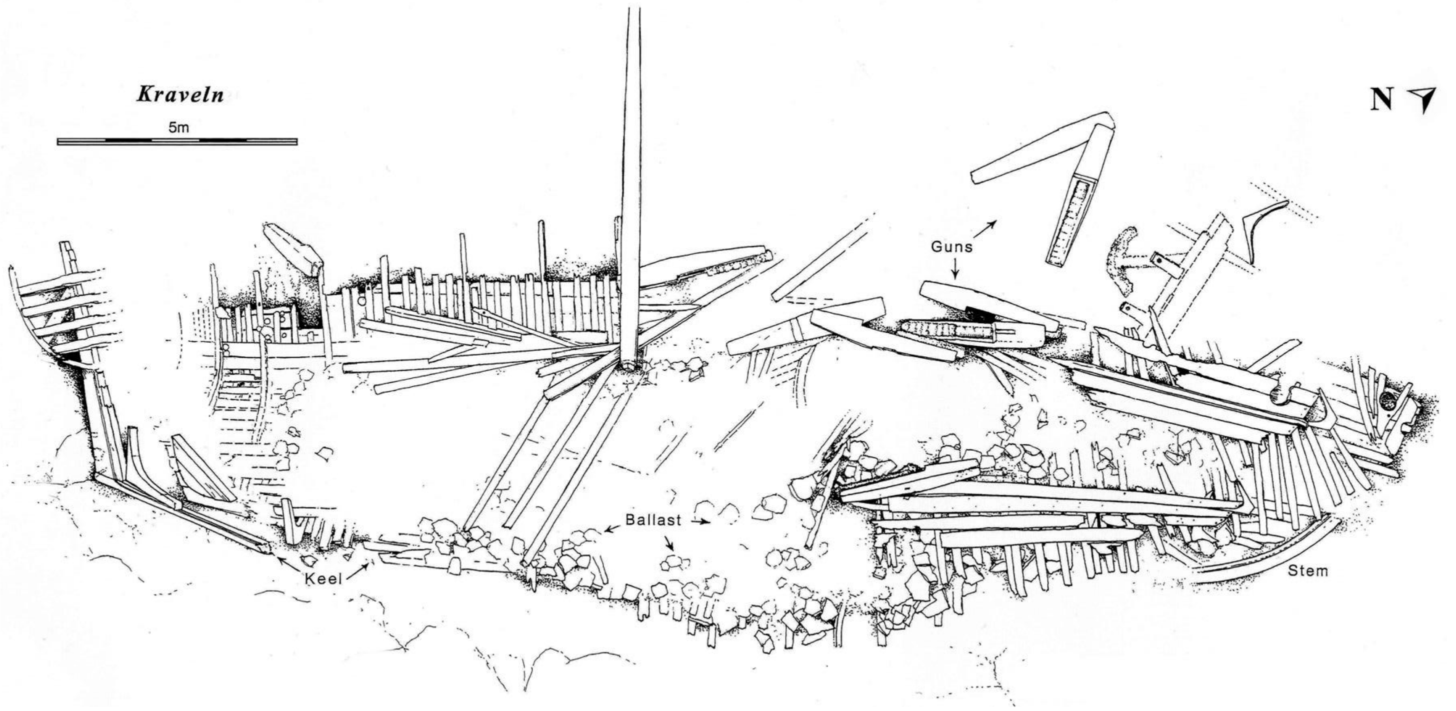
Construction Traits
Maststep – N/A
Floor/futtock connection – Dovetail scarves w/ 2 treenails & 2 iron nails.
Planking fasteners – Treenails and iron nails (sq.)
Caulking – Twisted lead strap w/ animal hair + pitch-like substance
Sheathing – Lead patches of several shapes found on site.
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

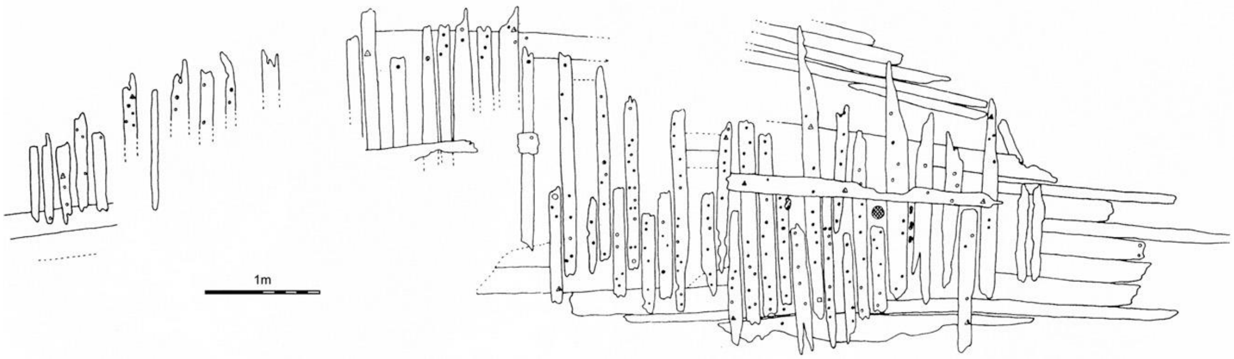
Notes –

Ref:
Oertling, T. J., 1989b, Molasses Reef wreck hull analysis: Final report. *IJNA* **18**.3, 229-243

Franska Sternarna


Kraveln
5m
N
Guns
Ballast
Keel
Stem

Fundamentals
Chronology: 1500-1525
Place built –
Place lost – Sweden
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –

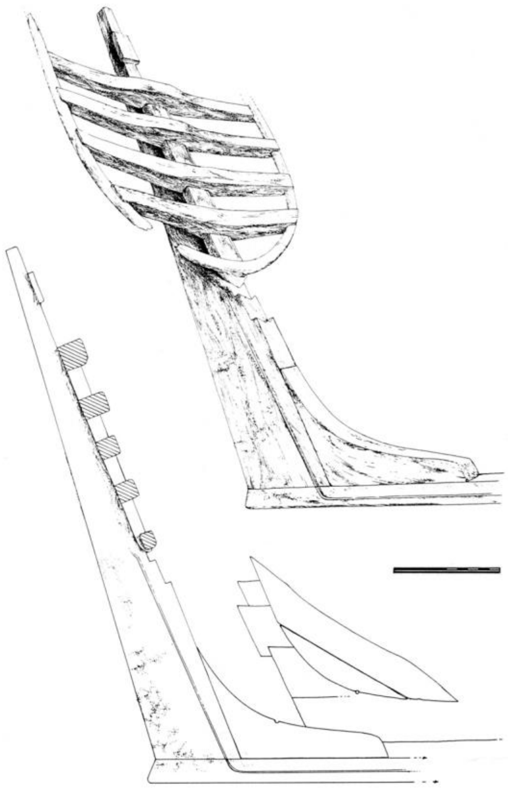


Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners –
Caulking –
Sheathing –
Keel/sternpost connection –

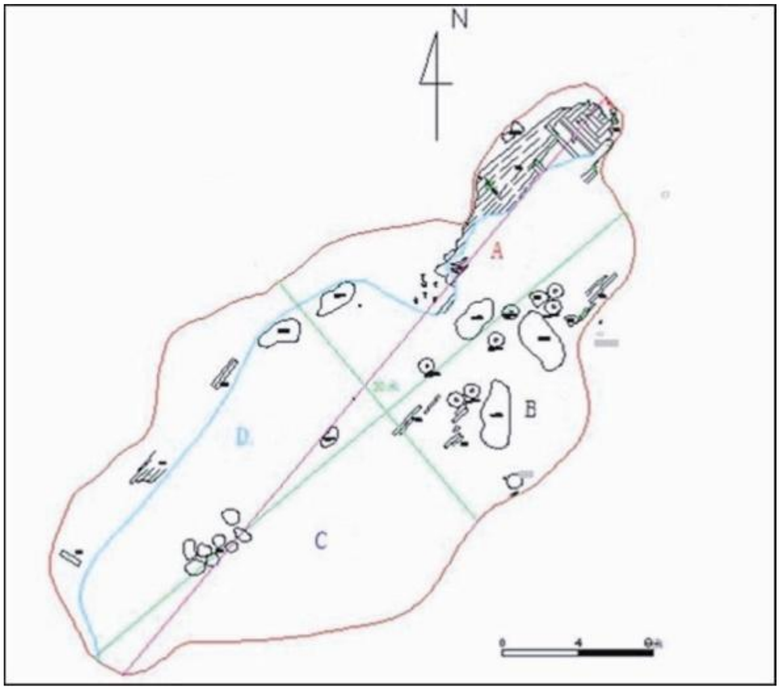
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

Ref:

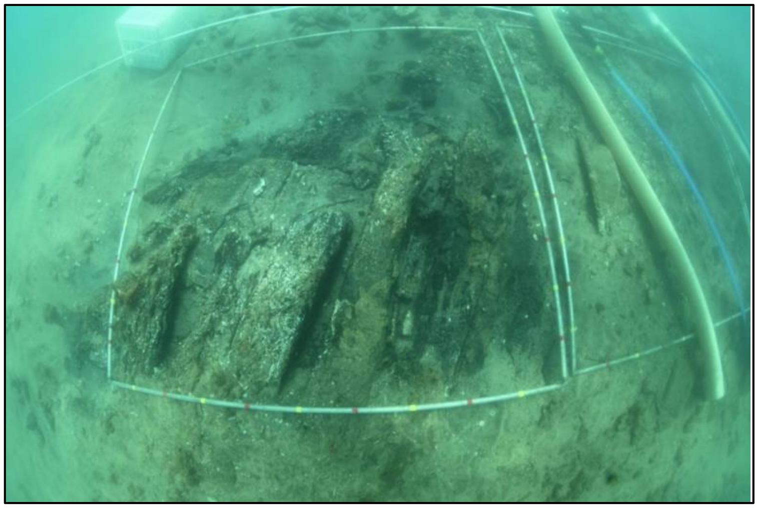


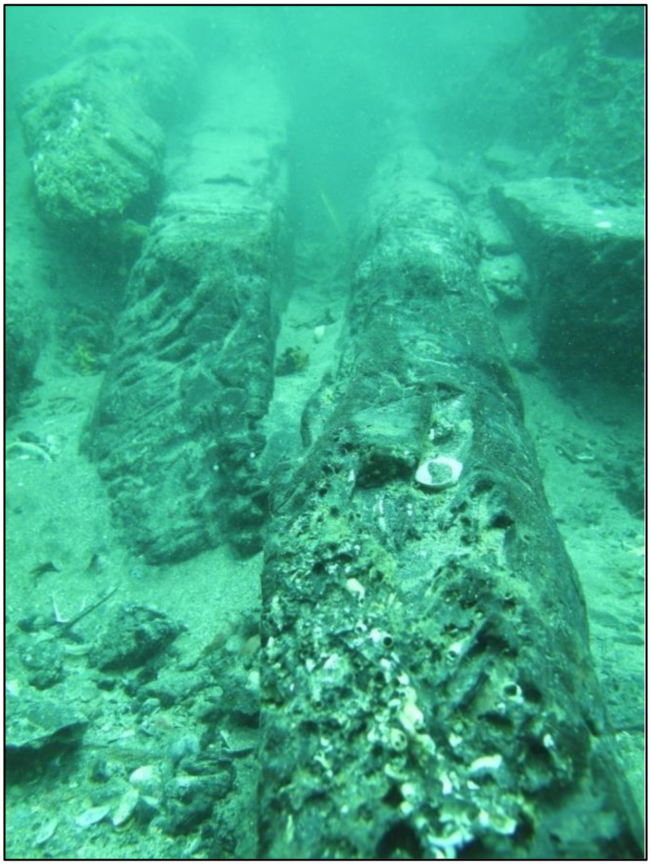
Ngomeni Ras



Fundamentals

Chronology: 1500-1525
Place built – Portugal
Place lost – Kenya
Preserved – 40 x 20 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –





Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners –
Caulking – Lead cord
Sheathing – Lead sheathing
Keel/sternpost connection –

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

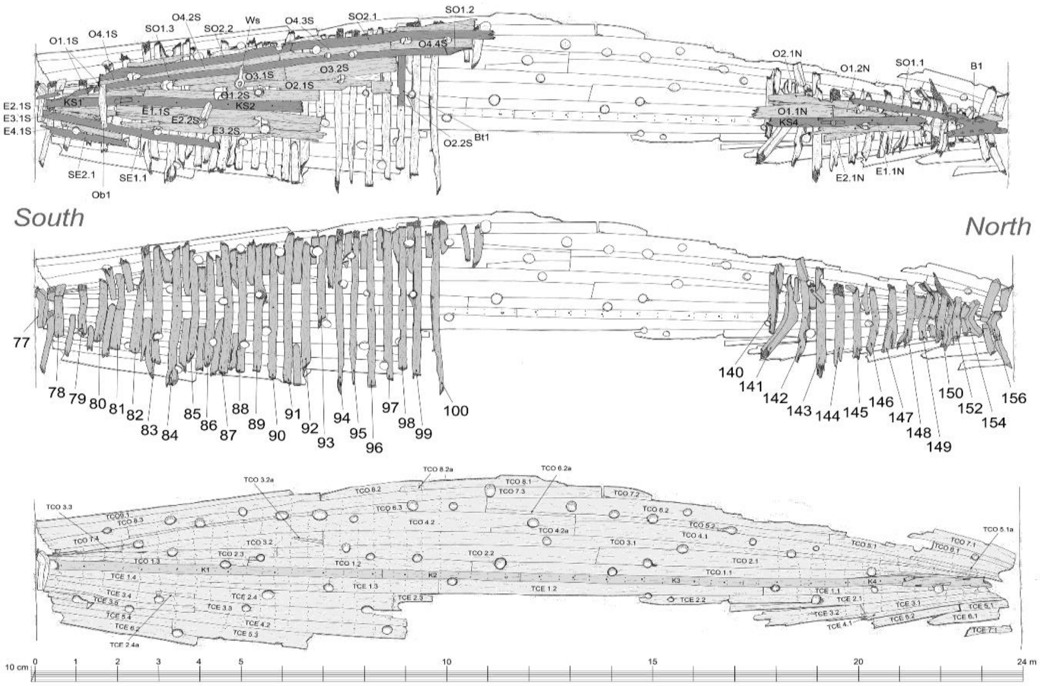
Notes –

Ref:

Bita, 2015 - *Maritime and underwater archaeological explorations in Kenya: Recent discoveries*. National Museums of Kenya, Fort Jesus Museum, Mombasa, P.O. Box 82412, 80100, Kenya.

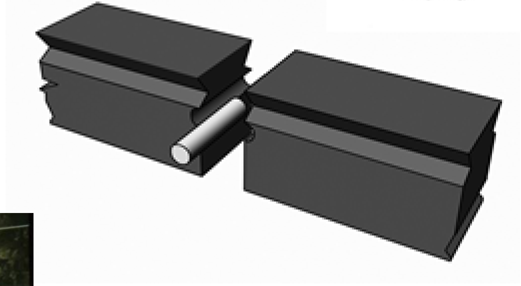
Bita, 2016 - *The 16th Century Ngomeni Shipwreck. Discovery and Preliminary Excavation*. National Museums of Kenya, Fort Jesus Museum, Mombasa, P.O. Box 82412, 80100, Kenya.

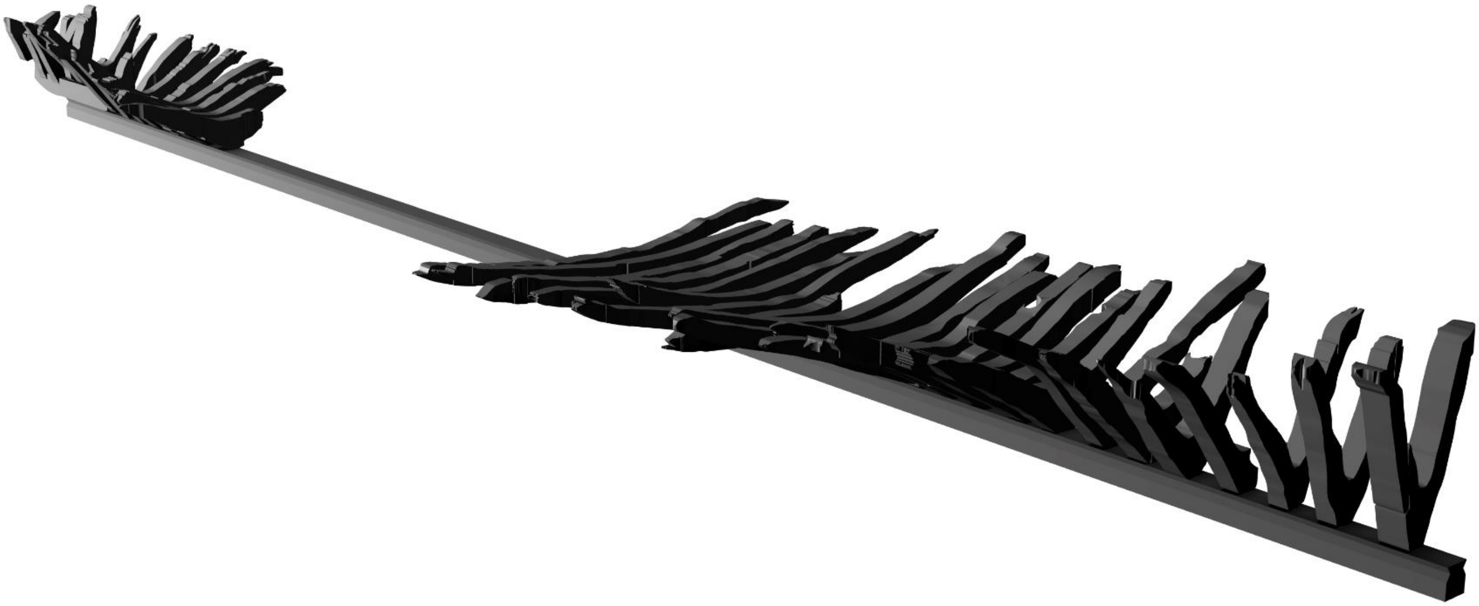
Cais do Sodre


O1.1S
O4.1S
SO1.3
O4.2S
SO2.2
Ws
O4.3S
SO2.1
SO1.2
O4.4S
O3.1S
O3.2S
O2.1S
O1.2S
KS1
KS2
E1.1S
E2.2S
E3.2S
E2.1S
E3.1S
E4.1S
SE2.1
SE1.1
Ob1
O2.2S
Bt1
O2.1N
O1.2N
SO1.1
B1
O1.1N
KS4
E2.1N
E1.1N
South
North
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
140
141
142
143
144
145
146
147
148
149
150
152
154
156
K1
K2
K3
K4
10 cm
0
1
2
3
4
5
10
15
20
24 m

Fundamentals

Chronology: 1475-1525
Place built – Portugal ?
Place lost –
Preserved – 24 x 4.9 m
Length reconstructed – 38 m; Beam reconstructed – ? m
Keel length – 24 m
Keel section (s/m) – 25 x 27 cm
Floors section (s/m) –20 x ? cm (average)
R&S – 23.95 cm
Plank thickness – 7 - 8 cm





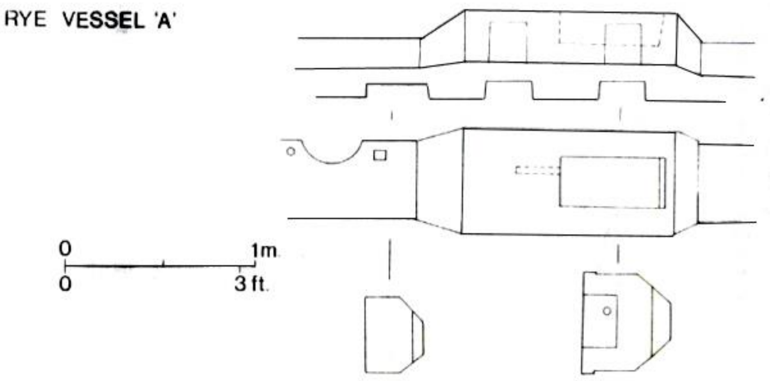
Construction Traits
Maststep – N/A
Floor/futtock connection – Dovetail scarves w/ 3 iron spikes
Planking fasteners – Iron nails (sq.)
Caulking – ?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits
Hull shape – Flat floor + 1 arc ?
Construction marks –
Evidence for rising and narrowing-

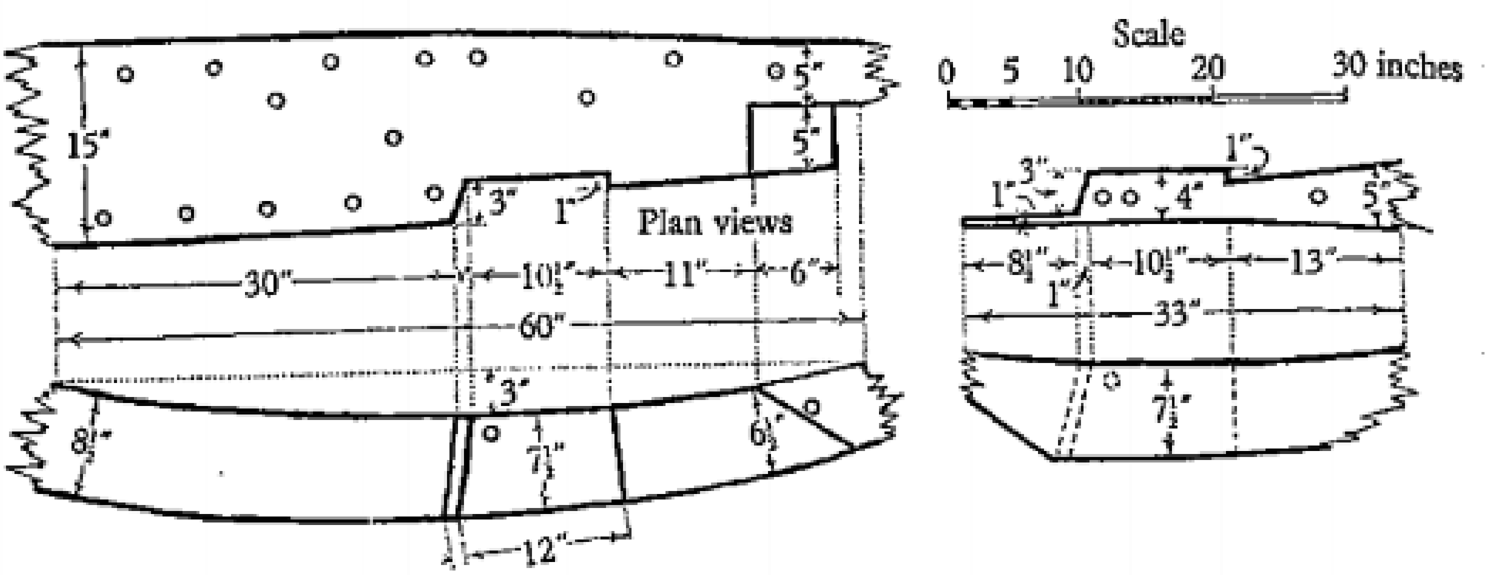
Notes –

Ref:
Castro, F., Yamafune, K., Eginton, C. and Derryberry, T., 2011, The Cais do Sodré Shipwreck, Lisbon, Portugal. *International Journal of Nautical Archaeology* **40**.2, 328-343.

Rye A



Fundamentals
Chronology: 1475-1525
Place built – England ?
Place lost –
Preserved – ? x ? m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel – Not preserved
Floors section (s/m) – Two main sizes: 27 x 22 cm and 17 x 17 cm
R&S – ?
Plank thickness – 7.6 cm



Scale
0 5 10 20 30 inches
15"
5"
5"
3"
1"
Plan views
30"
10½"
11"
6"
60"
3"
8½"
7½"
6½"
12"
3"
1"
1"
4"
5"
8¼"
1"
10½"
13"
33"
7½"

Fig. 2. Vessel A, a scarf.

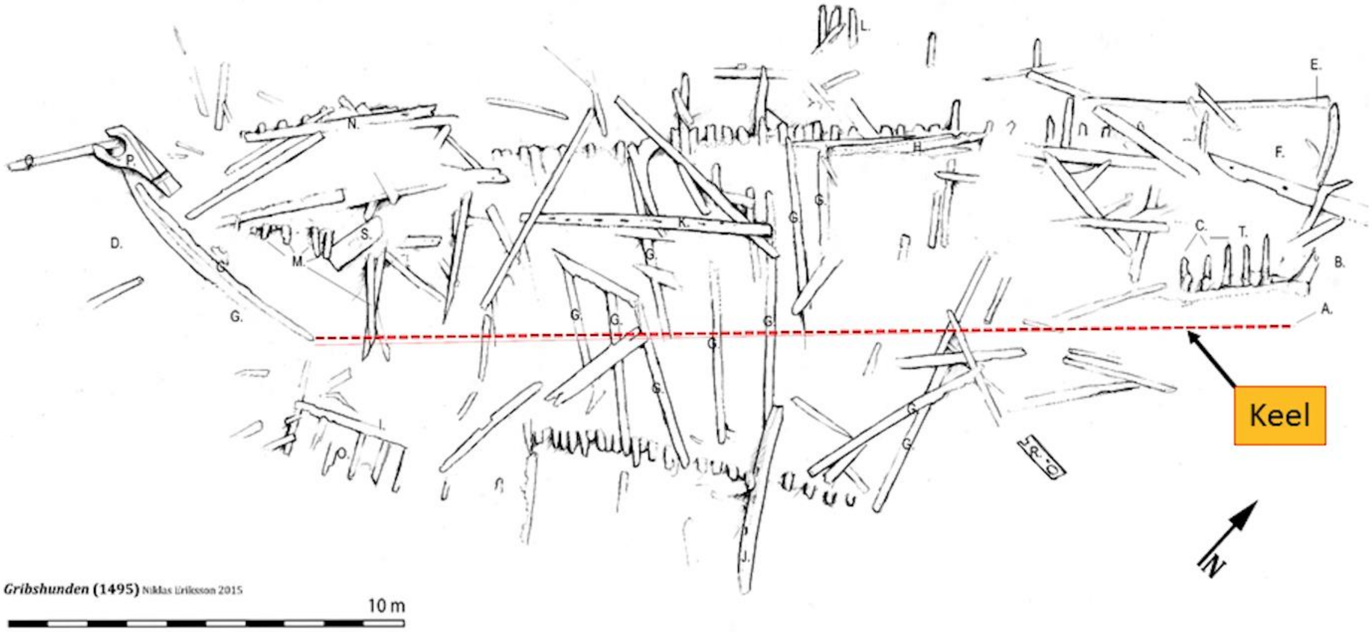
Construction Traits
Maststep – Expanded keelson
Floor/futtock connection – scarves fastened w/ treenails ?
Planking fasteners – Treenails
Caulking– Animal hair
Sheathing – ?
Keel/sternpost connection – N/A

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes – There are a few holes in the keelson for iron nails, used aparently for minor repairs (These metalic fastenings had dissapeared)

Ref:
Lovegrove, C. H., 1964, Remains of Two Old Vessels Found at Rye, Sussex. *Mariner's Mirror* **50**.2, 115-122.

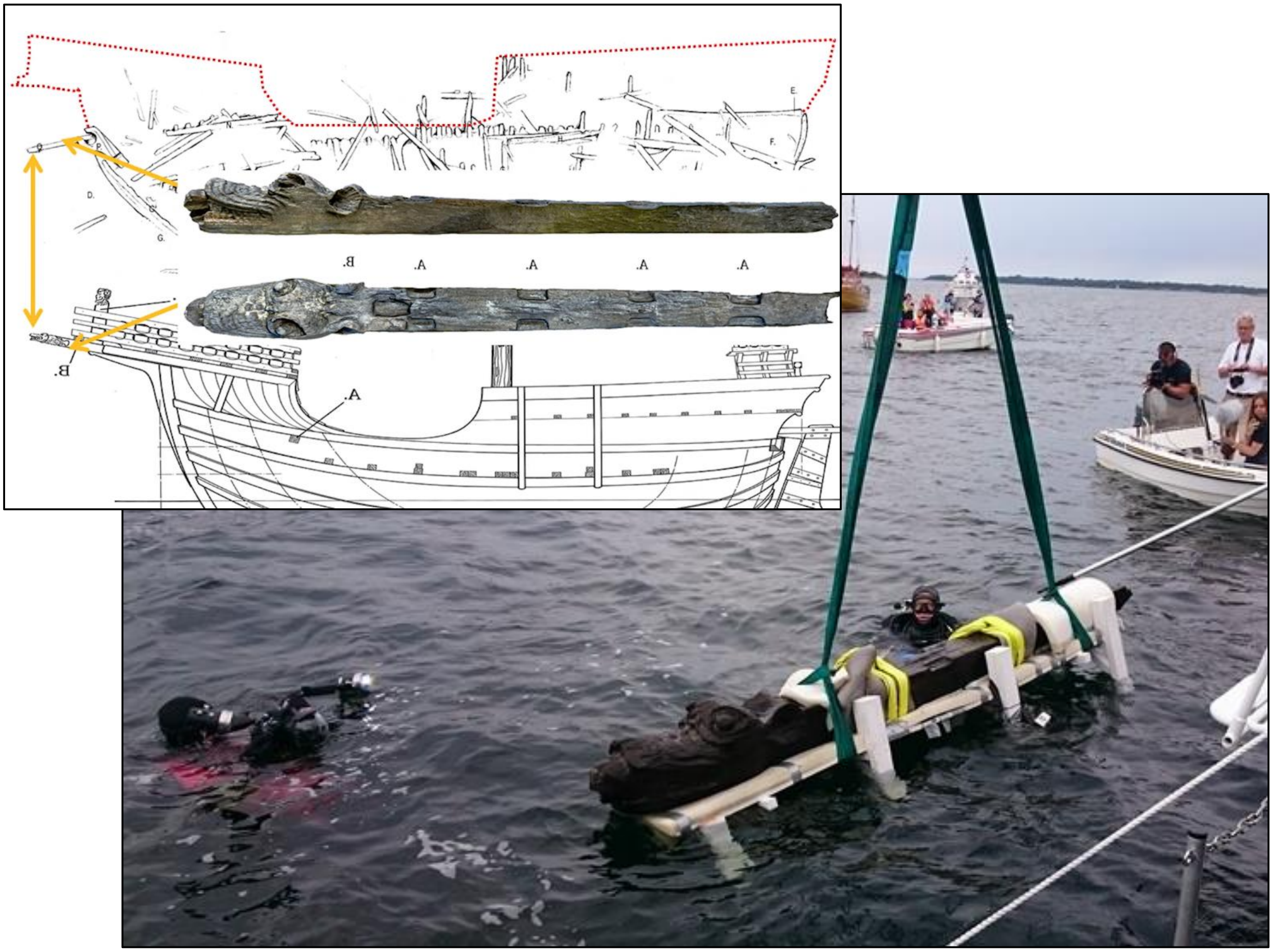
Gribshunden



P.
N.
D.
S.
M.
G.
L.
E.
F.
H.
K.
C.
T.
B.
A.
J.
R.
Keel
N
Gribshunden (1495) Niklas Eriksson 2015
10 m

Niklas Eriksson

Fundamentals
Chronology: 1486-1495
Place built – Denmark
Place lost – Ronneby, Sweden
Preserved –
Length reconstructed – 35 m; Beam reconstructed – 7.5 m.
Keel length – m
Keel section (s/m) –
Floors section (s/m) –
R&S – ?
Plank thickness –



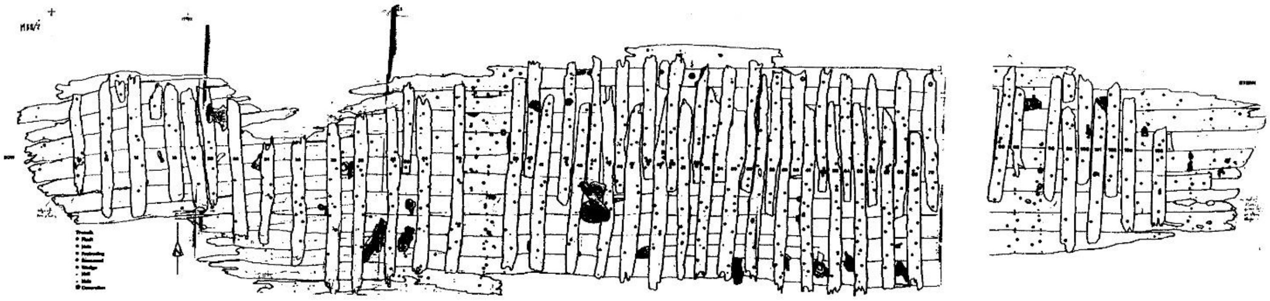
Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners – Carvel.
Caulking – ?
Sheathing – ?
Keel/sternpost connection –

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

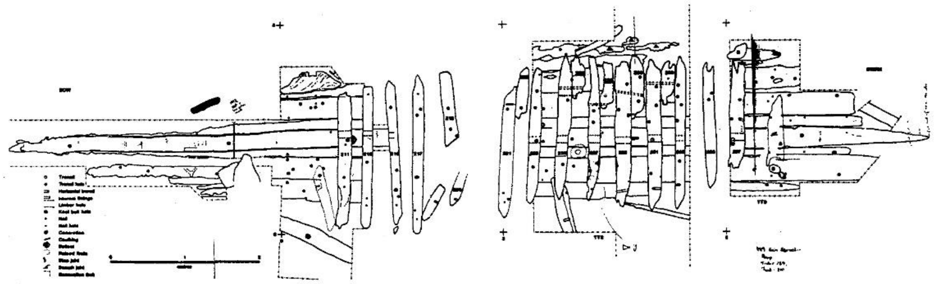
Notes – Just non-intrusive survey, 2013 and 2015. Rudder 6.5 m high.

Ref:
https://www.youtube.com/watch?v=38HOwGFCe_U
https://www.youtube.com/watch?v=h0kh5nOe0I0

Studland Bay



Area 1. (Plan 1988/2)



Area 2. (Plan 1989/5)

Fundamentals

Chronology: 1500-1525

Place built – Spain ?

Place lost –

Preserved – 24 x 4 m (the main body of the wreck)

Length reconstructed – 24 m; Beam reconstructed – ? m

Keel length – 12.5 m

Keel section (s/m) – 24 or 25 cm wide

Floors section (s/m) – 17 x 22 cm

R&S – ?

Plank thickness – 6 cm

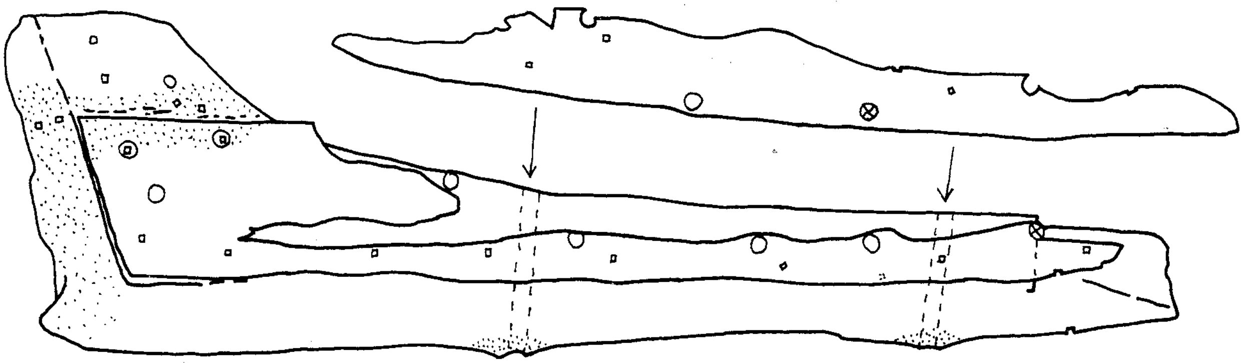


Figure 4. The 'sternpost assembly'; original scale 1:20, drawn here as 70% of original (1:28·6). Shaded area = rust. (Drawing: author after finds sheet 11)

Construction Traits
Maststep – N/A
Floor/futtock connection – iron nails (sq.)
Planking fasteners – Treenails and iron nails (sq.).
Caulking – ?
Sheathing – ?
Keel/sternpost connection – Stern heel and stern knee

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes – The 12 strakes and 2 tier of futtocks indicate that this vessel had one main deck level.

Ref:
Thomsen, M. H., 2000, The Studland Bay wreck, Dorset, UK: hull analysis. *The International Journal of Nautical Archaeology* **29**.1, 69-85.

San Vito lo Capo

Fundamentals
Chronology: 1500-1525
Place built –
Place lost – Italy
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –

Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners –
Caulking –
Sheathing –
Keel/sternpost connection –

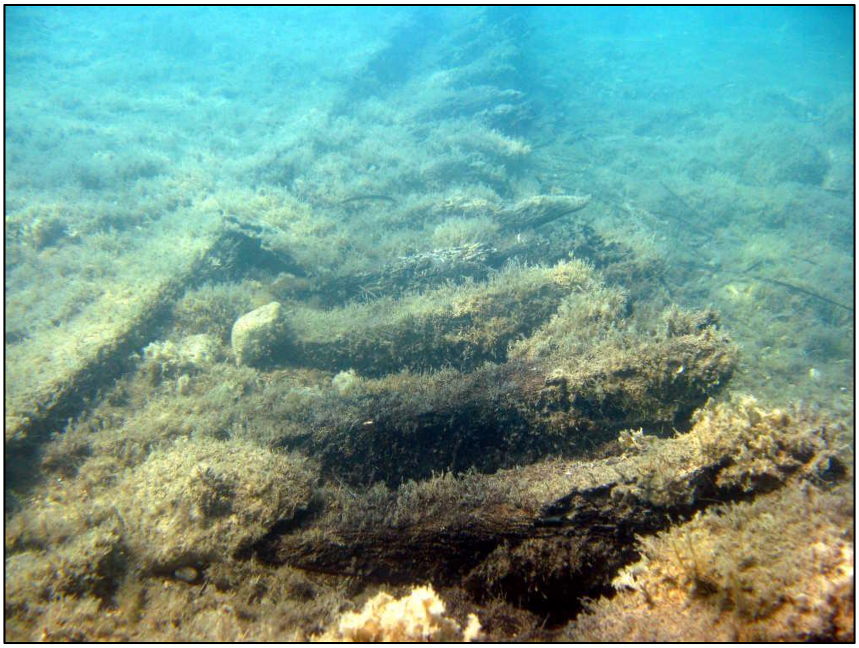
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

Ref:

Casarossa

Fundamentals
Chronology: 1500-1600
Place built –
Place lost – Italy
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –



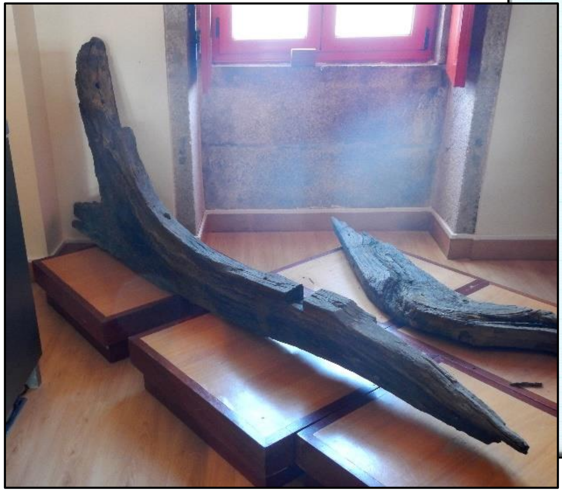
Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners –
Caulking –
Sheathing –
Keel/sternpost connection –

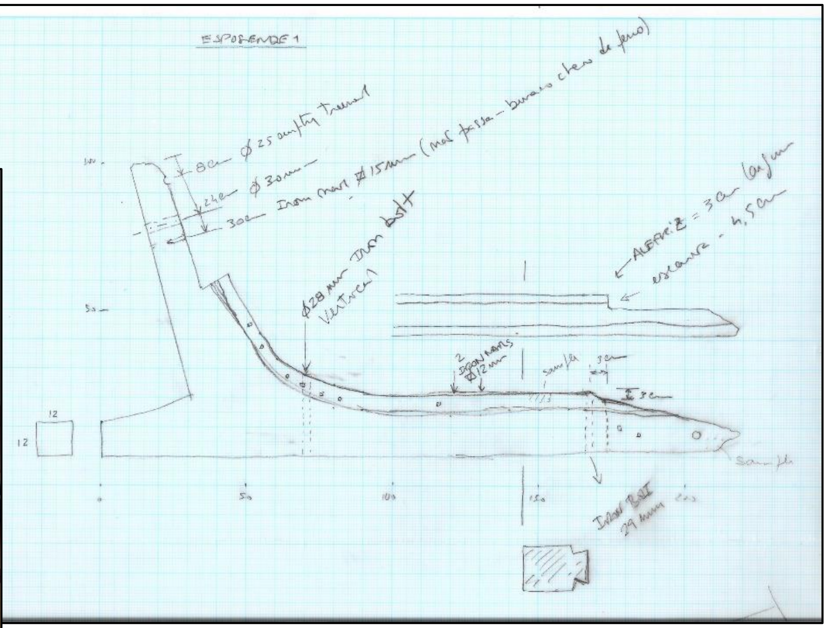
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

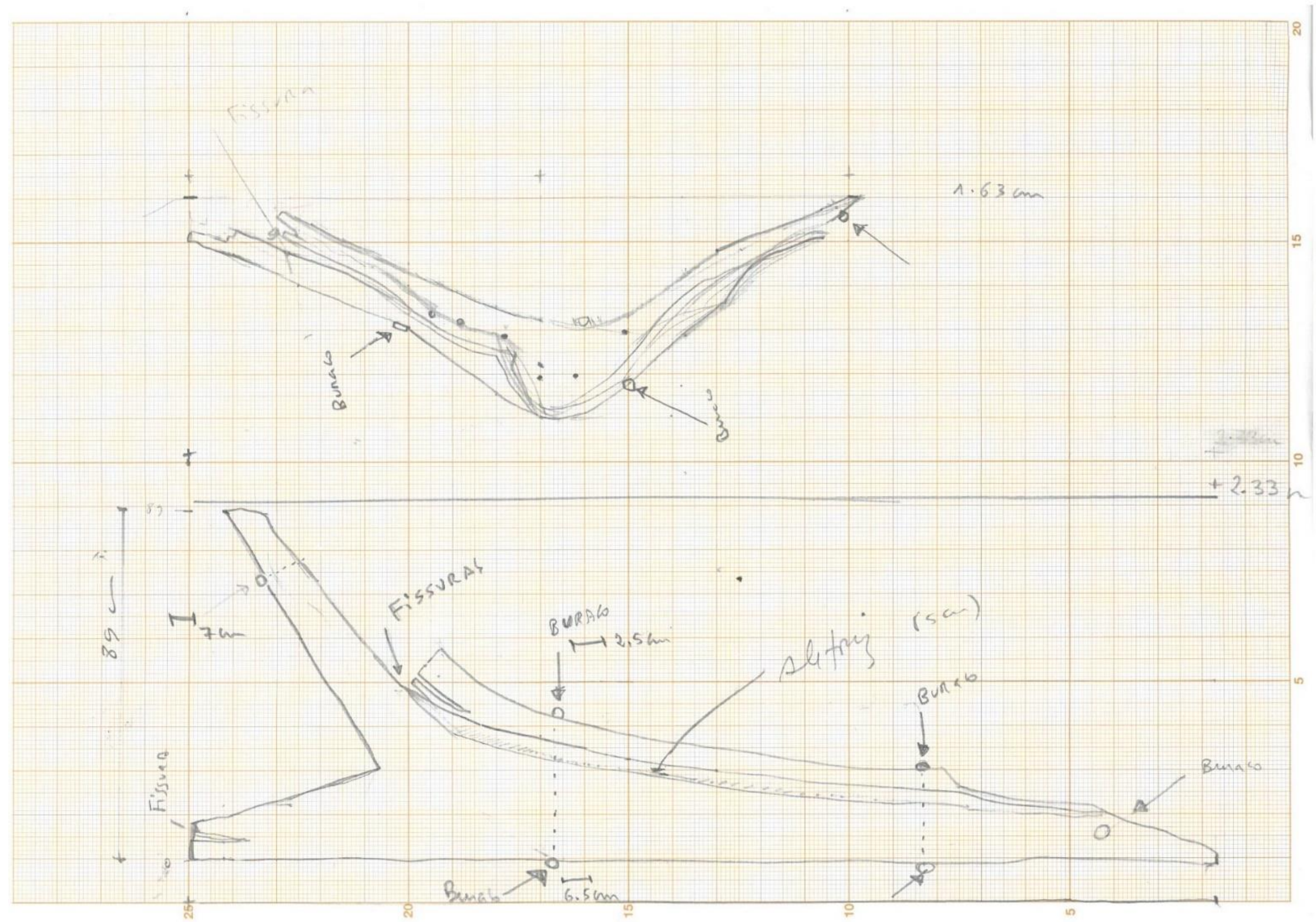
Ref:

Esposende 1




ESPOSENDE 1
8cm Ø 25 empty treenail
24cm Ø 30mm
30cm Iron nail Ø 15mm (mal passa – buraco cheio de ferro)
Ø28 mm Iron bolt vertical
ALEFRIZ = 3cm largura
escarva – 4,5cm
2 IRON NAILS Ø12 mm
sample
3cm
3cm
sample
IRON BOLT 29 mm
100
50
12
12
0
50
100
150
200

Fundamentals
Chronology: 1500-1650
Place built – Portugal ?
Place lost – Esposende
Preserved – ?
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) – ? or ? cm wide
Floors section (s/m) – ? x ? cm
R&S – ?
Plank thickness – ? cm


Fissura
1.63 cm
Buraco
Buraco
+2.33 m
89
7cm
FISSURAS
BURACO
2,5cm
Alefriz
(5cm)
BURACO
Buraco
Fissura
Buraco
6.5cm
25
20
15
10
5

Construction Traits
Maststep – N/A
Floor/futtock connection – ?
Planking fasteners – Iron nails (sq.).
Caulking – ?
Sheathing – ?
Keel/sternpost connection – Stern heel and stern knee

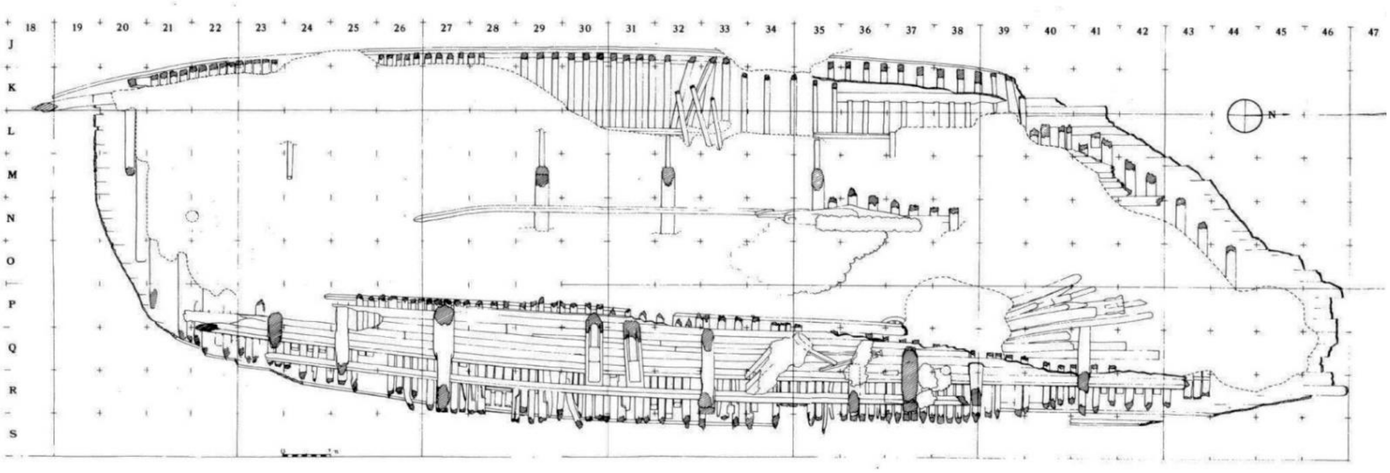
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes – Part of a vessel with a round tuck hit by dredges and reburied. C14 dated to c. 1650, it was found near 15th century pottery.

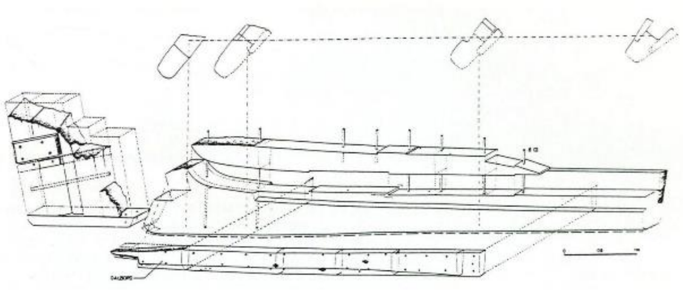
Ref:

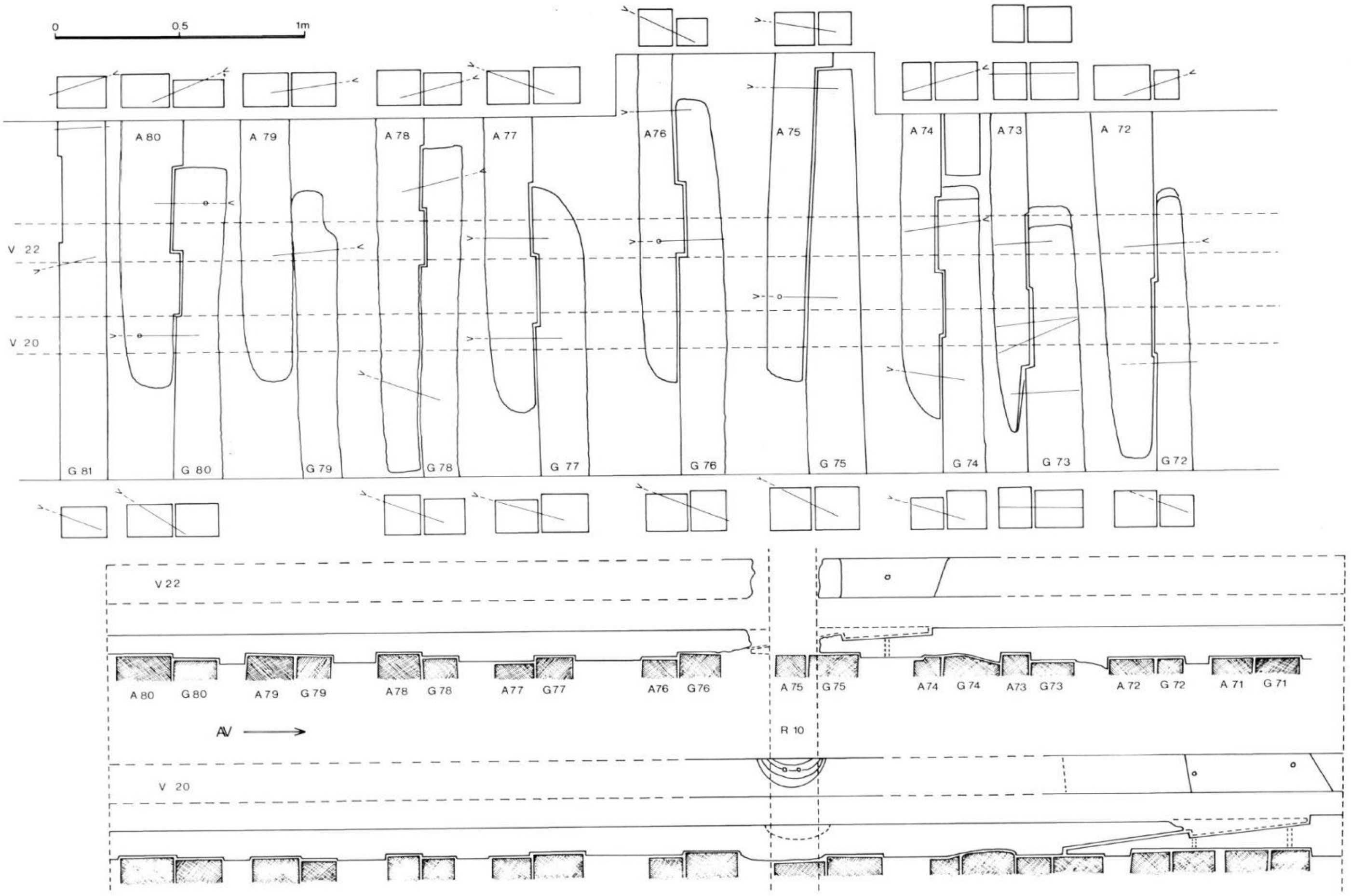
Villefranche

Lomelina


18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
J
K
L
M
N
O
P
Q
R
S
N

Fundamentals
Chronology: 1516
Place built – Genoa ?
Place lost –
Preserved – 52 x 20 m
Length reconstructed – 46.45 m; Beam reconstructed – 14 m
Keel length – 33.38 m
Keel section (s/m) – 35 x 70 cm
Floors section (s/m) – 23.5 x 22 cm
R&S – 47 cm
Plank thickness – 12 cm




0
0.5
1m
A 80
A 79
A 78
A 77
A76
A 75
A 74
A 73
A 72
V 22
V 20
G 81
G 80
G 79
G 78
G 77
G 76
G 75
G 74
G 73
G 72
V 22
A 80
G 80
A 79
G 79
A 78
G 78
A 77
G 77
A 76
G 76
A 75
G 75
A 74
G 74
A 73
G 73
A 72
G 72
A 71
G 71
AV
R 10
V 20

19 a (en haut). Croisement entre genou et première allonge. 19 b (en bas). Serres V 20 et V 22.

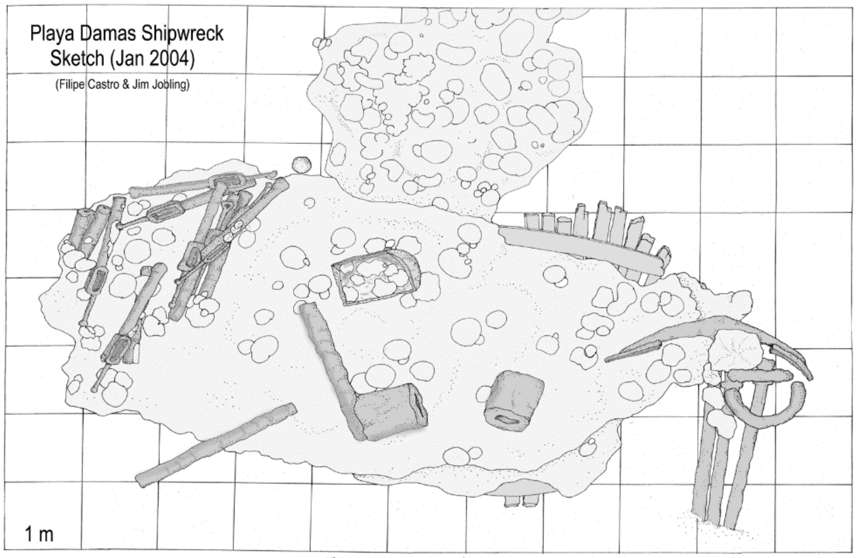
Construction Traits
Maststep – Mediterranean
Floor/futtock connection – dovetails
Planking fasteners – Nails square
Caulking – vegetable fibers
Sheathing – full lead sheathing (lower hull)
Keel/sternpost connection – Butt join

Design Traits
Hull shape – Wineglass
Construction marks –
Evidence for rising and narrowing -

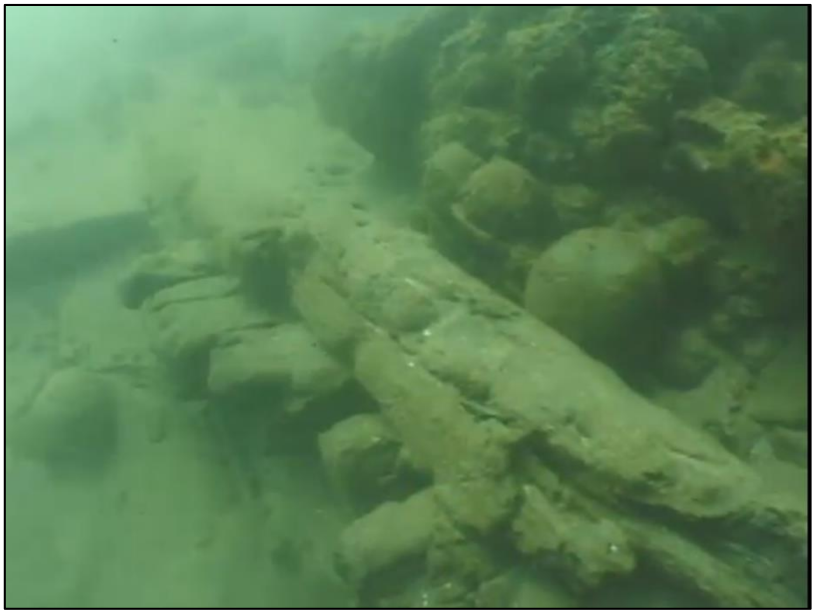
Notes –

Ref:
Guérout, M., Rieth, E., Gassend, J.-M. and Liou, B., 1989, Le navire Génois de Villefranche, un naufrage de 1516? *Archaeonautica* **9**, 5-171.

Playa Damas


Playa Damas Shipwreck
Sketch (Jan 2004)
(Filipe Castro & Jim Jobling)
1 m

Fundamentals
Chronology: 1525-1550
Place built – Spain?
Place lost – Panama
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –



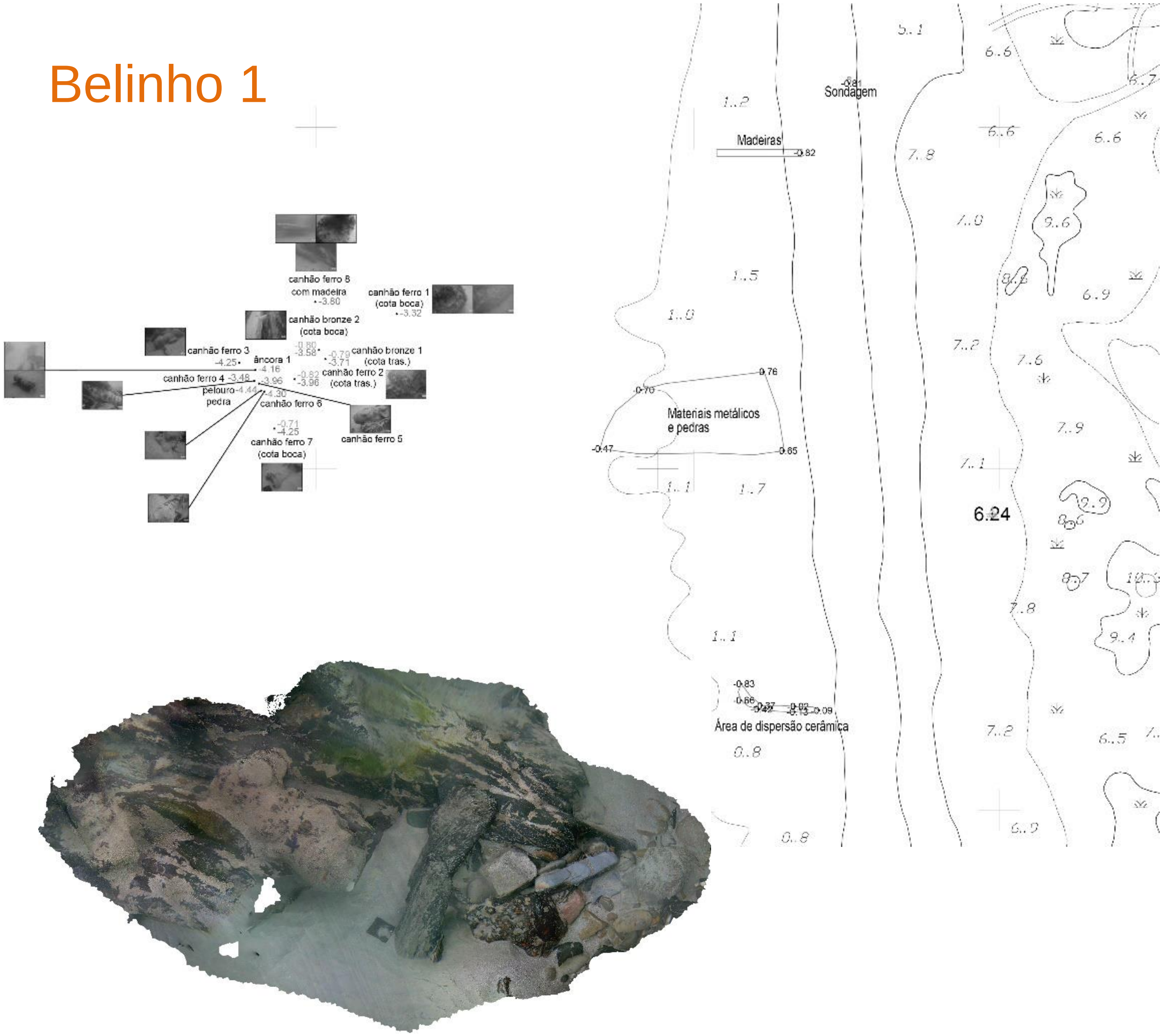
Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners –
Caulking –
Sheathing –
Keel/sternpost connection –

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

Ref:

Belinho 1


canhão ferro 8
com madeira
-3.80
canhão ferro 1
(cota boca)
-3.32
canhão bronze 2
(cota boca)
-0.80
-3.58
canhão ferro 3
-4.25
âncora 1
-4.16
-0.79
-3.71
canhão bronze 1
(cota tras.)
canhão ferro 4
-3.48
-3.96
-0.82
-3.96
canhão ferro 2
(cota tras.)
pelouro
-4.44
pedra
-4.30
canhão ferro 6
-0.71
-4.25
canhão ferro 7
(cota boca)
canhão ferro 5
Sondagem
Madeiras
-0.82
Materiais metálicos
e pedras
-0.70
0.76
-0.47
0.65
6.24
-0.83
-0.66
-0.37
-0.42
-0.02
-0.13
-0.09
Área de dispersão cerâmica

Fundamentals

Chronology: 1525-1575

Place built – Spain ?

Place lost –

Preserved – 20 x 40 m (scatter)

Length reconstructed – 21 m; Beam reconstructed – 7 m

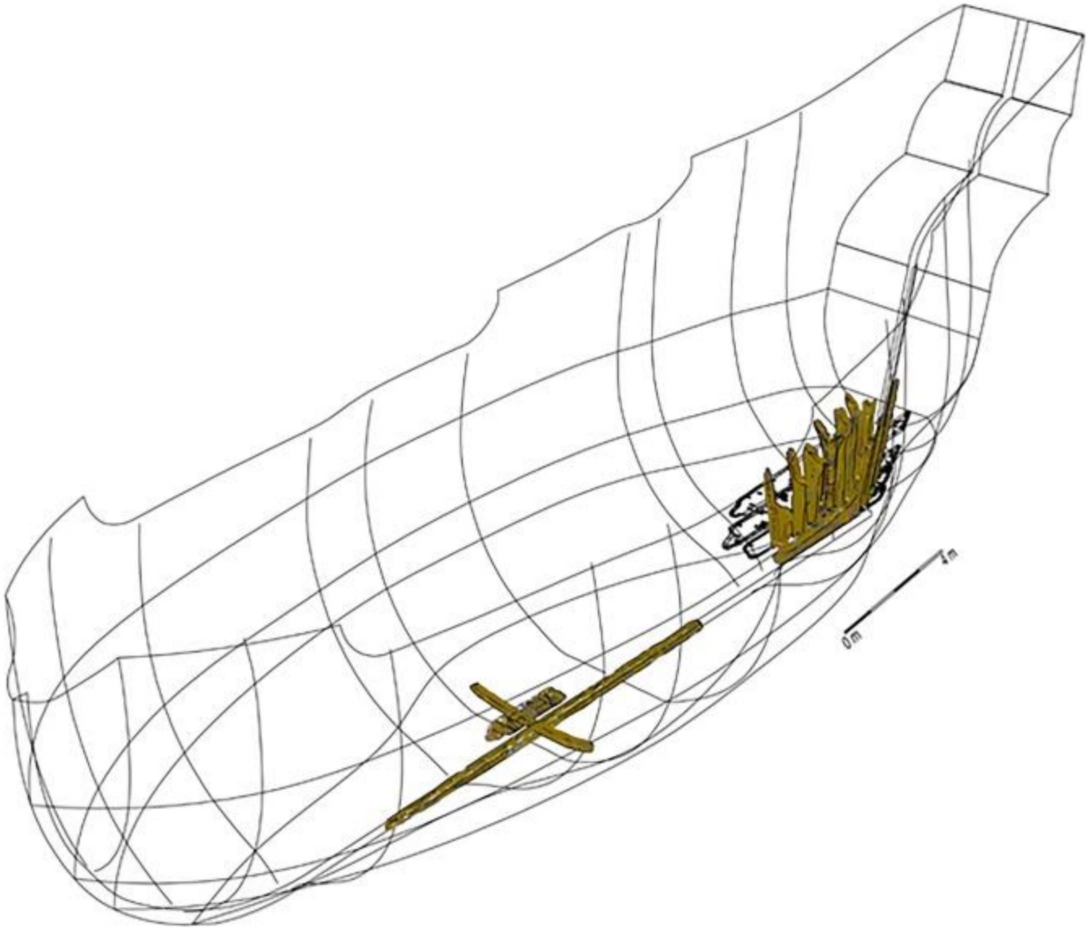
Keel length – 15 m ?

Keel section (s/m) – 23 x 19 cm

Floors section (s/m) – 17 x 18 cm

R&S – 34 cm

Plank thickness – 6.5 cm



Construction Traits

Maststep – Expanded Keelson
Floor/futtock connection – dovetail scarves and 2 treenails and 2/3 nails
Planking fasteners – 2 treenails and 2 iron nails
Caulking – Oakum between planks
Sheathing – Full lead sheathing (lower hull)
Keel/sternpost connection – N/A (stern knee)

Design Traits

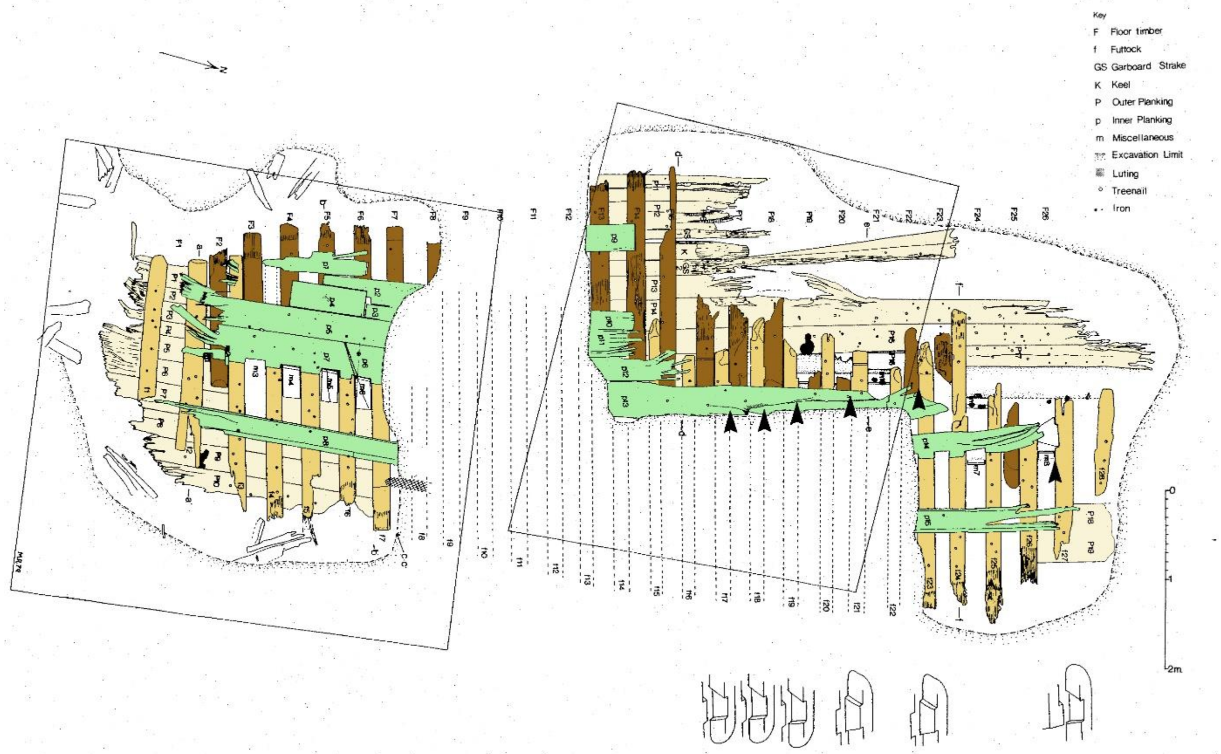
Hull shape – Flat with circular futtock arcs
Construction marks -

Notes –

Refs:

Castro, F., Almeida, A., Bezant, J., Biscaia, F., Carmo, A., Crespo, A., Farias, I., Gonçalves, I., Groenendijk, P., Magalhães, I., Martins, A., Monteiro, A., Nayling, N., Santos, A., Trapaga, K., 2015. *The Belinho 1 Timber Catalogue*, Typed report on file in the Ship Reconstruction Laboratory (academia.edu), Texas A&M University.

Cattewater


Key
F Floor timber
f Futtock
GS Garboard Strake
K Keel
P Outer Planking
p Inner Planking
m Miscellaneous
Excavation Limit
Luting
Treenail
Iron
0
1
2m.
MR 79

Fundamentals

Chronology: c. 1525-1550

Place built – North Atlantic

Place lost –

Preserved – 11 x 7 m

Length reconstructed – 27.7 m; Beam reconstructed – 9.7 m

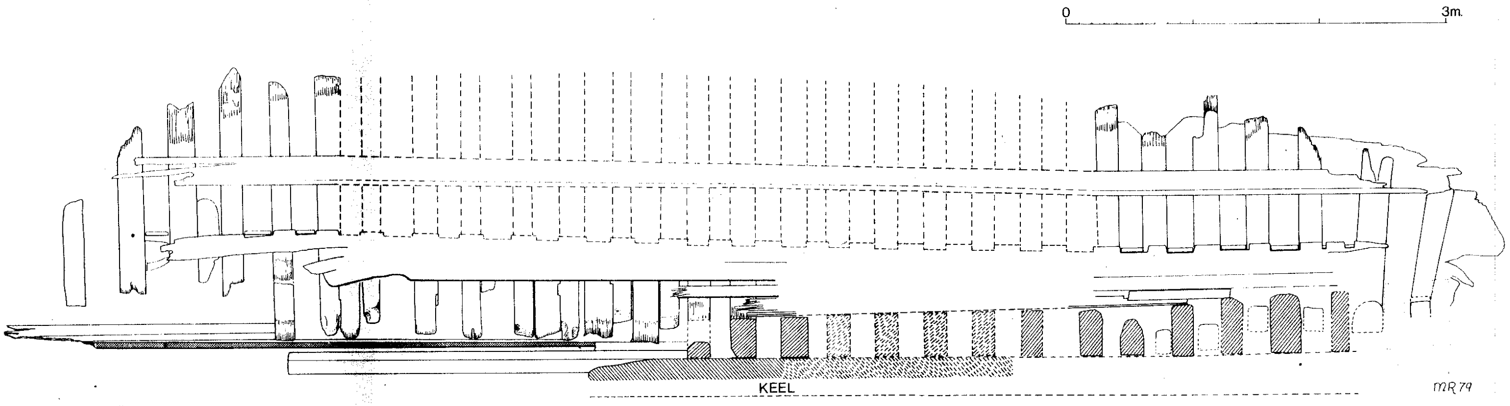
Keel length – 19.8 m

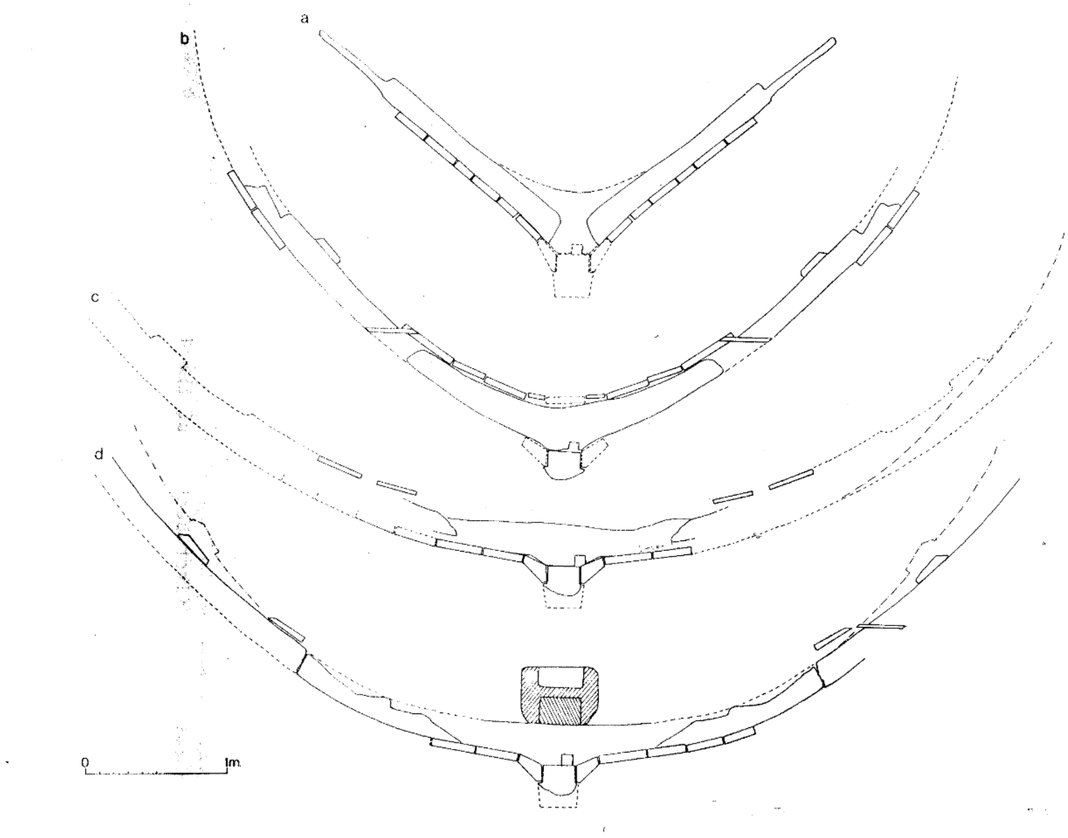
Keel section (s/m) – 27 / 30 cm

Floors section (s/m) – 21 x 21 cm

R&S – 42 cm

Plank thickness – 7 cm


0
3m.
KEEL
MR 79



Construction Traits
Maststep – Expanded Keelson
Floor/futtock connection – dovetail
Planking fasteners – Nails sq.
Caulking– tarred oakum between planks
Sheathing – Lead sheet
Keel/sternpost connection – N/A

Design Traits
Hull shape – Flat floor + 1 arc ?
Construction marks –
Evidence for rising and narrowing -

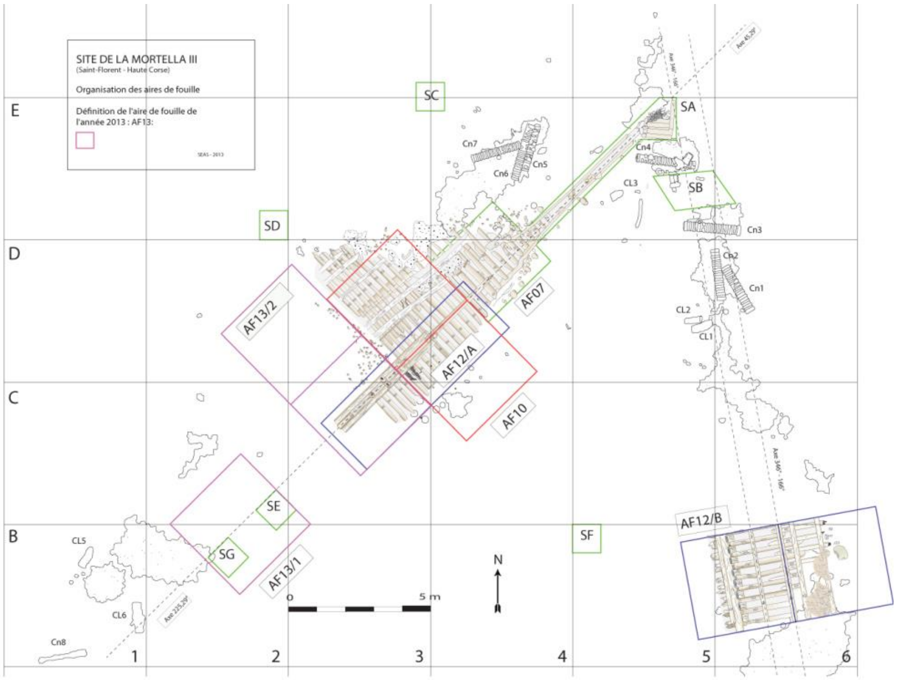
Notes –

Ref:
Redknap, M., 1984, *The Cattewater Wreck: The investigation of an armed vessel of the early sixteenth century*. Oxford.

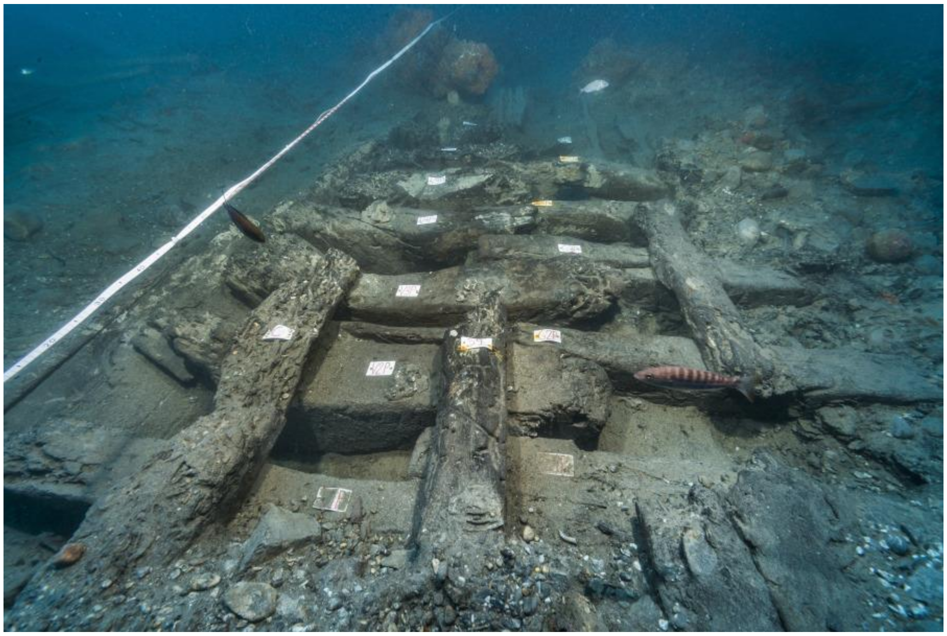
Mortella 3

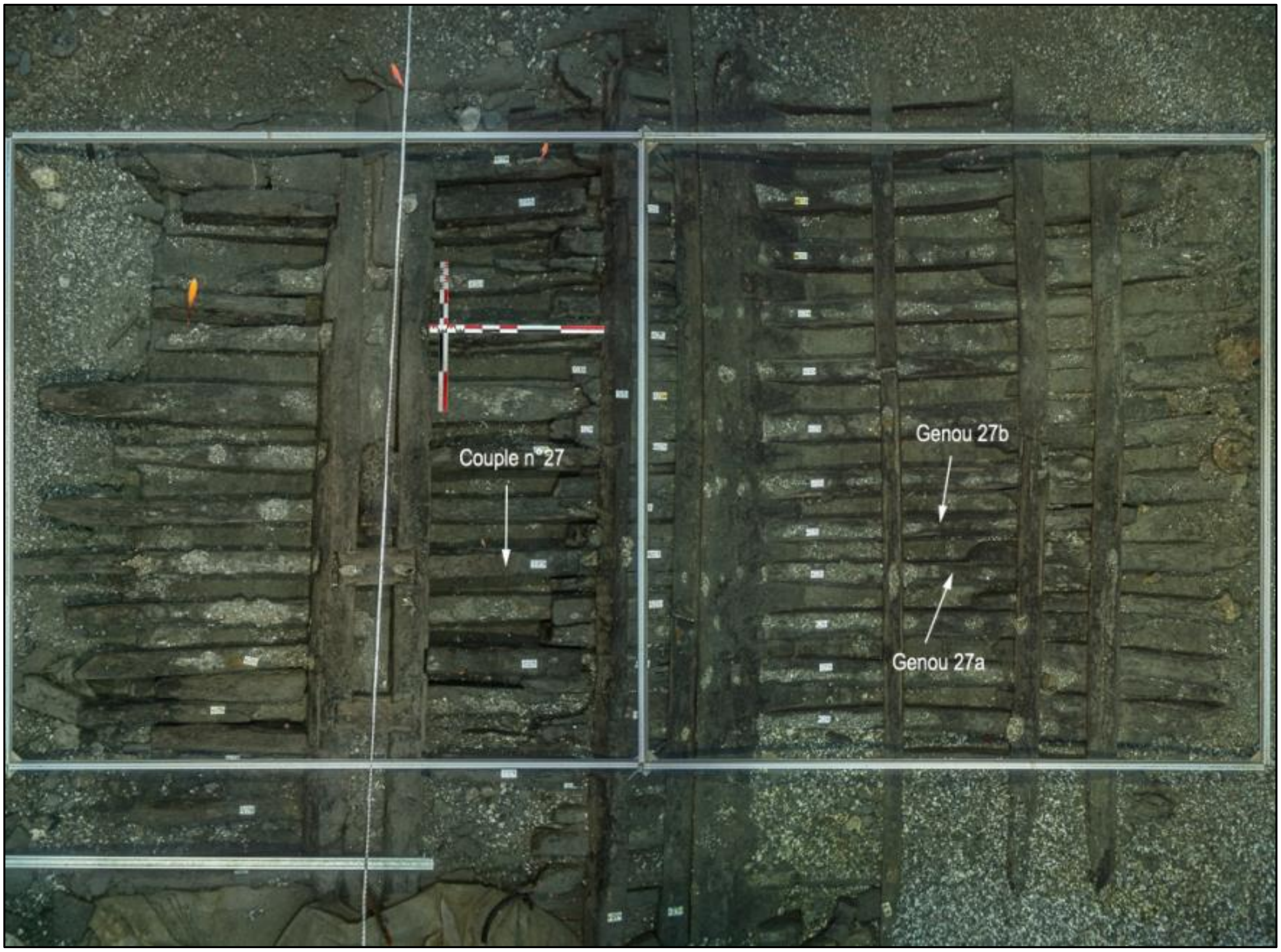
La Ferrara or *La Boscaina*

Incomplete


SITE DE LA MORTELLA III
(Saint-Florent - Haute Corse)
Organisation des aires de fouille
Définition de l'aire de fouille de l'année 2013 : AF13:
SEAS - 2013
SA
SB
SC
SD
SE
SF
SG
AF07
AF10
AF12/A
AF12/B
AF13/1
AF13/2
Cn1
Cn2
Cn3
Cn4
Cn5
Cn6
Cn7
Cn8
CL1
CL2
CL3
CL5
CL6
Axe 45,29°
Axe 225,29°
Axe 346° - 166°
E
D
C
B
1
2
3
4
5
6
0
5 m
N

Fundamentals
Chronology: 1527
Place built – Genoa
Place lost – Saint-Florent
Preserved – 35 x 10 m
Length reconstructed – ? m; Beam reconstructed – 10 m
Keel length – 25 m
Keel section (s/m) – 24 x 26 cm; false keel – 24 x 20 cm
Floors section (s/m) – 17.3 x 16.7 cm
R&S – 32 cm
Plank thickness – 9 cm





Construction Traits
Maststep – Mediterranean
Floor/futtock connection – shallow hook scarf
Planking fasteners – Nails round
Caulking – vegetable fibers, covered in pitch/sulfur
Sheathing – None
Keel/sternpost connection – Vertical scarf

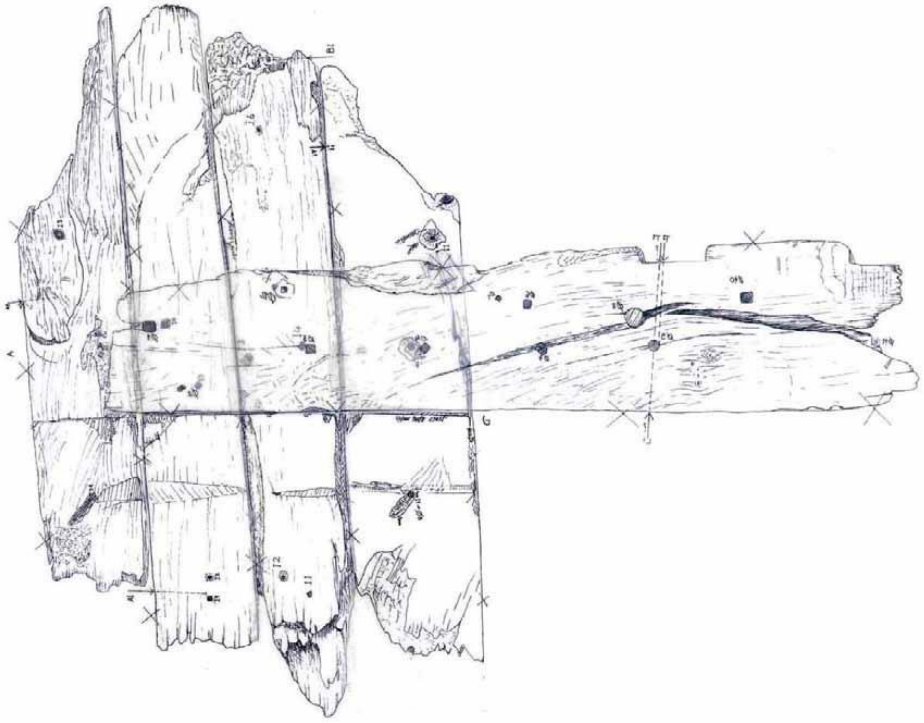
Design Traits
Hull shape – 1 arc
Construction marks –
Evidence for rising and narrowing –

Notes –

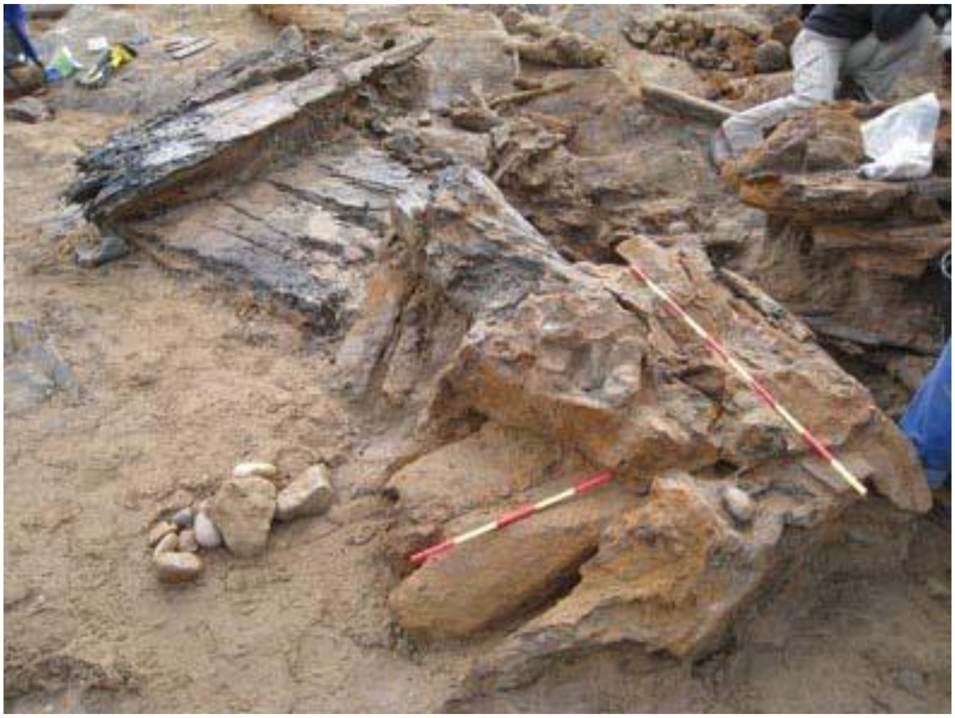
Refs:

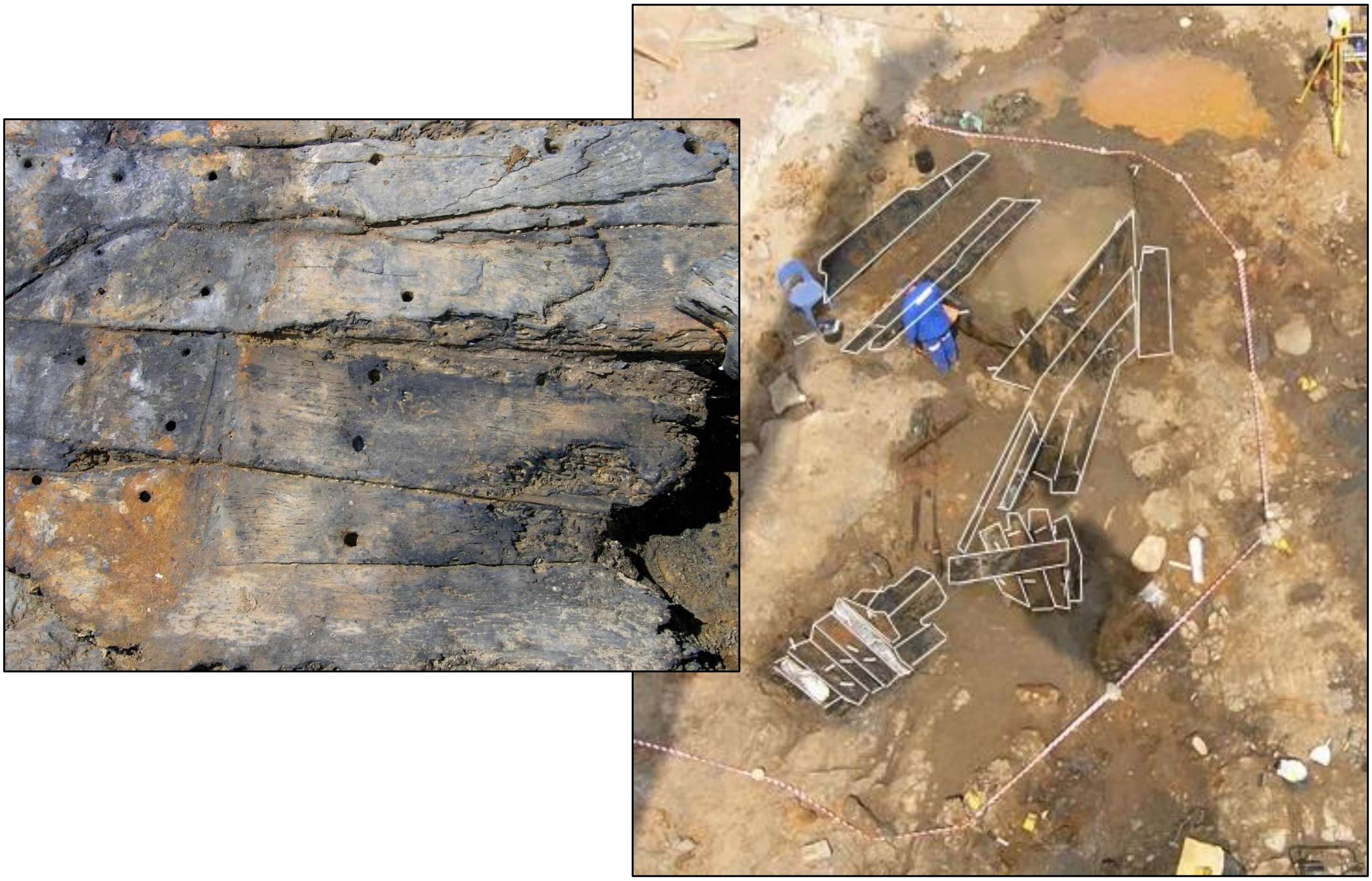
Bom Jesus

Oranjemund



Fundamentals
Chronology: 1533
Place built – Portugal ?
Place lost –
Preserved – 15 x 15 m (scatter)
Length reconstructed – N/A ; Beam reconstructed – N/A
Keel length – N/A
Keel section (s/m) – N/A
Floors section (s/m) – 16-23 x 22 cm
R&S – 40 cm
Plank thickness – 9 cm





Construction Traits
Maststep – Not preserved
Floor/futtock connection – N/A
Planking fasteners – Nails square
Caulking – Lead strip in the seams
Sheathing – Lead strips over the seams
Keel/sternpost connection – Not preserved

Design Traits
Hull shape – N/A
Construction marks –
Evidence for rising and narrowing -

Notes – Most timbers preserved were not recorded.

Ref:
Alves, F., 2011, The 16th century Portuguese shipwreck of Oranjemund, Namibia: Report on the missions carried out by the Portuguese team in 2008 and 2009. Lisbon.

Ringaren

Fundamentals
Chronology: 1542-1575
Place built –
Place lost –
Preserved –
Length reconstructed – 23 m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness – lapstrake

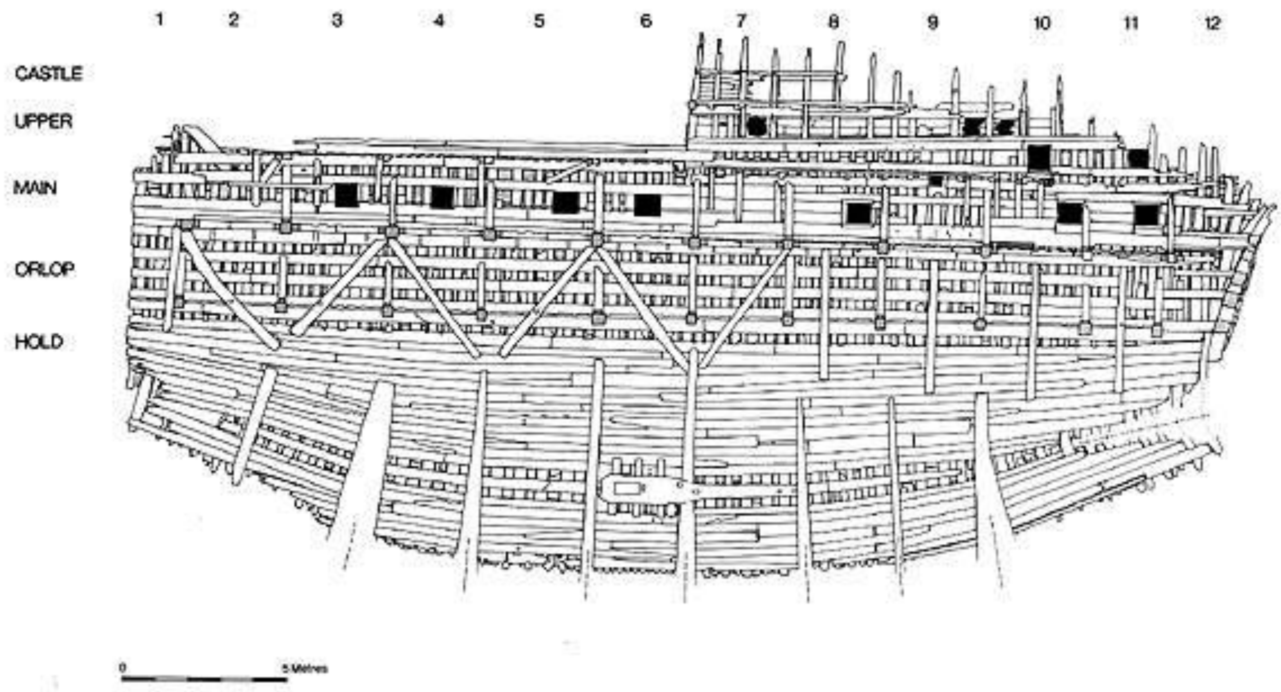
Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners –
Caulking –
Sheathing –
Keel/sternpost connection –

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

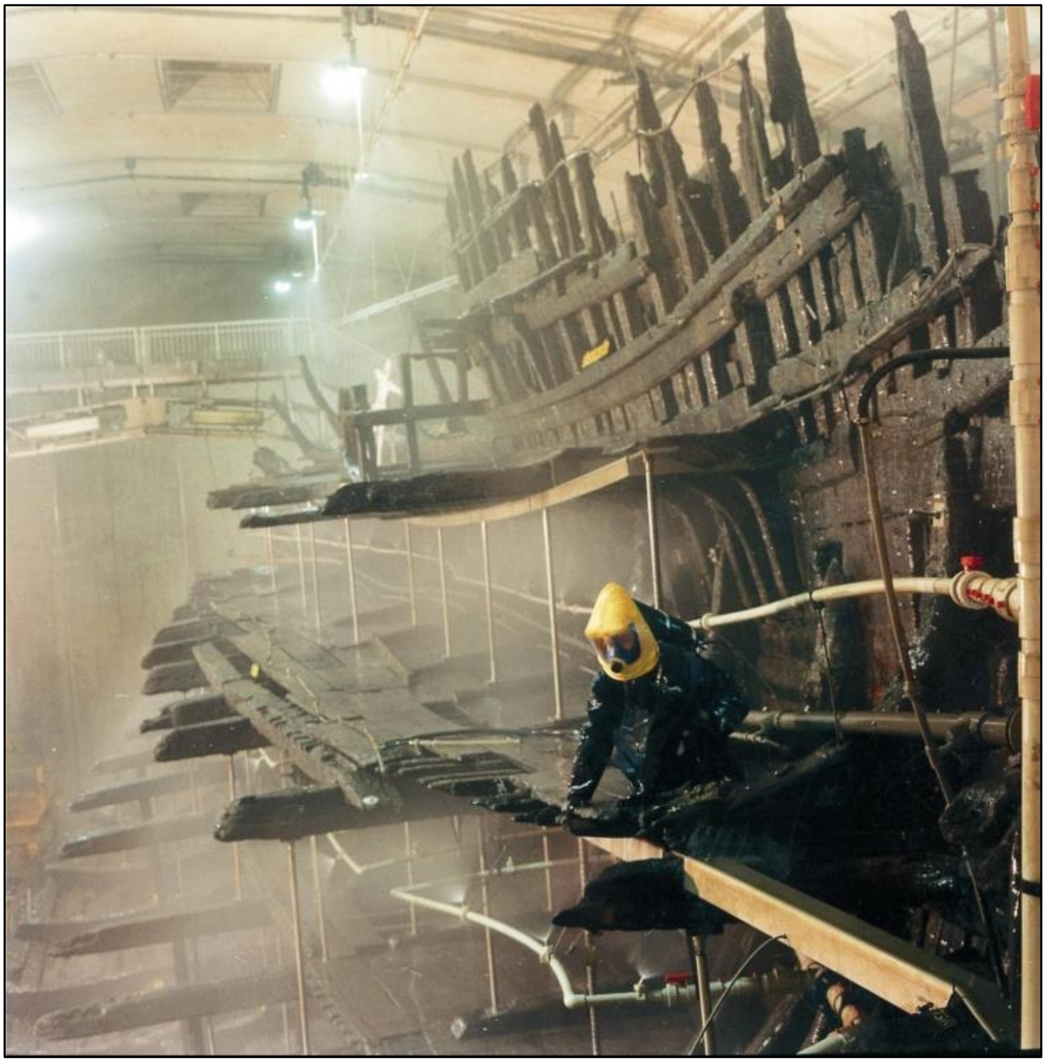
Notes –

Ref:

Mary Rose


1
2
3
4
5
6
7
8
9
10
11
12
CASTLE
UPPER
MAIN
ORLOP
HOLD
0
5 Metres

Fundamentals
Chronology: 1545
Place built – England
Place lost –
Preserved – 30 x 15 m
Length reconstructed – 42 m; Beam reconstructed – 12 m
Keel length – 31 m
Keel section (s/m) – 38 x 30 cm
Floors section (s/m) – 38 x ? cm
R&S – 43.5 cm
Plank thickness – 10 cm
Caulking – animal hair and flax
Sheathing – None
Maststep – Expanded Keelson
Floor/futtock connection – notched lap joint
Planking fasteners – Nails square
Keel/sternpost connection – vertical scarf
Hull shape – flat + 3 arcs
Notes –



Construction Traits
Maststep – Expanded Keelson
Floor/futtock connection – notched lap joint
Planking fasteners – Nails square
Caulking – animal hair and flax
Sheathing – None
Keel/sternpost connection – vertical scarf

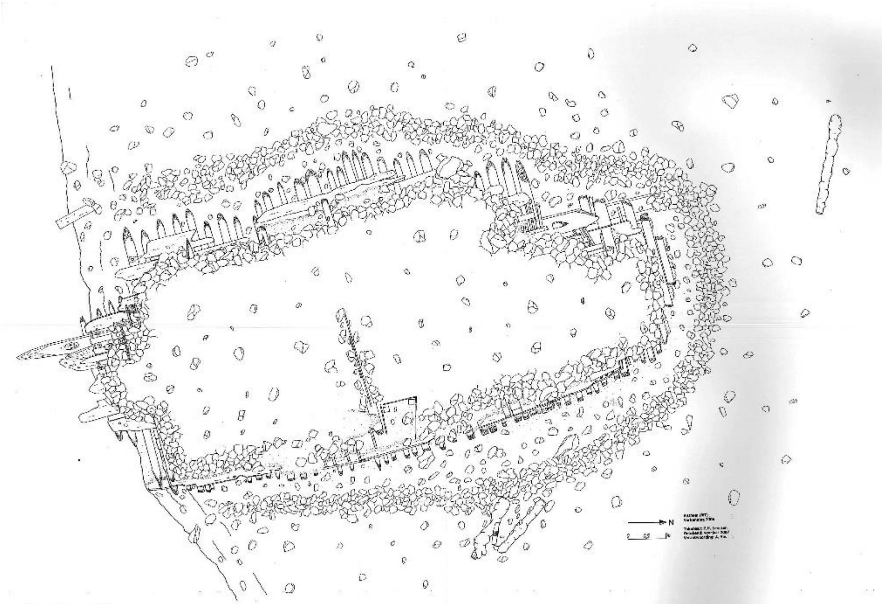
Design Traits
Hull shape – flat + 3 arcs
Construction marks –
Evidence for rising and narrowing -

Notes –

Ref:

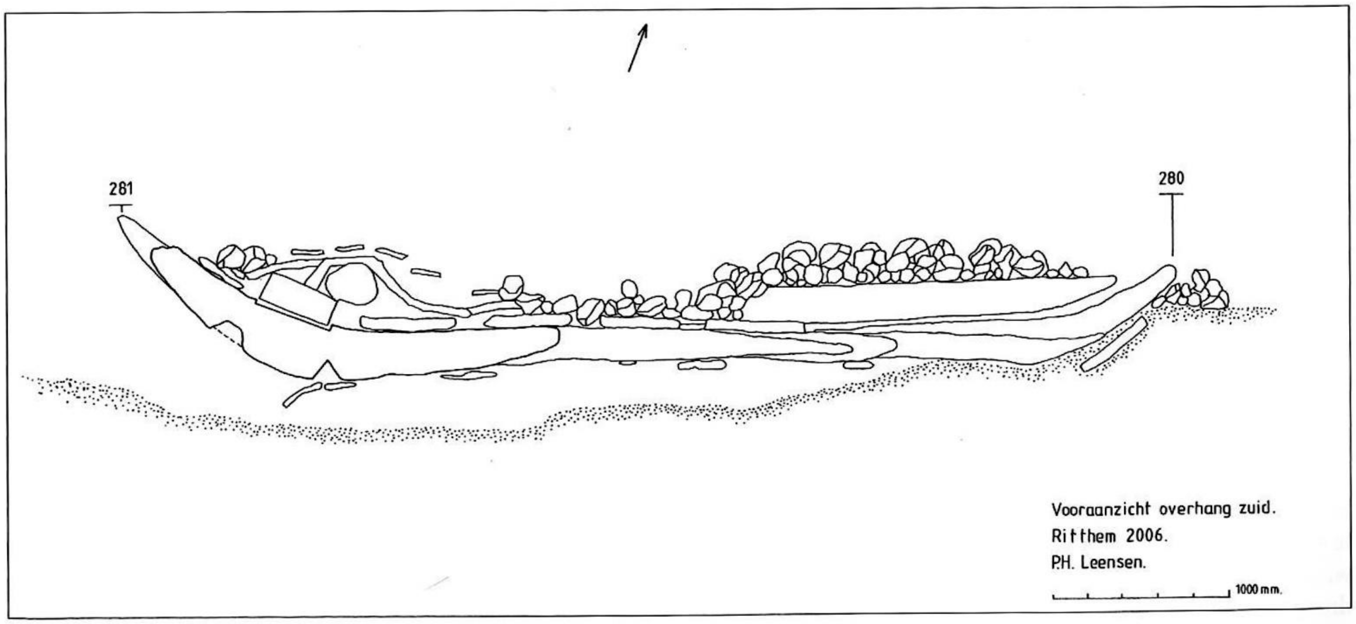
Marsden, P. R. V. (ed.) 2009, *Mary Rose: Your Noblest Shippe: anatomy of a Tudor warship*, Portsmouth, England. Mary Rose Trust.

Ritthem



Bijlage 5.1 Veldtekening wrak Ritthem

Fundamentals
Chronology: 1550-1555
Place built – Zeeland?
Place lost – Holland
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –


281
280
Vooraanzicht overhang zuid.
Ritthem 2006.
P.H. Leensen.
1000 mm.

Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners –
Caulking –
Sheathing –
Keel/sternpost connection –

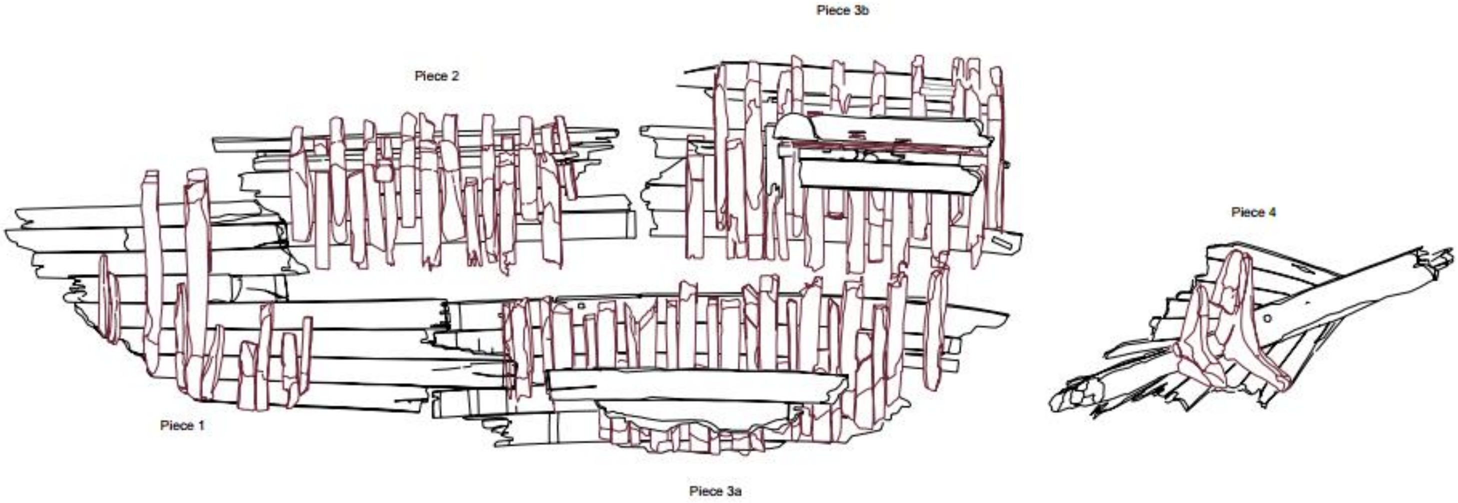
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

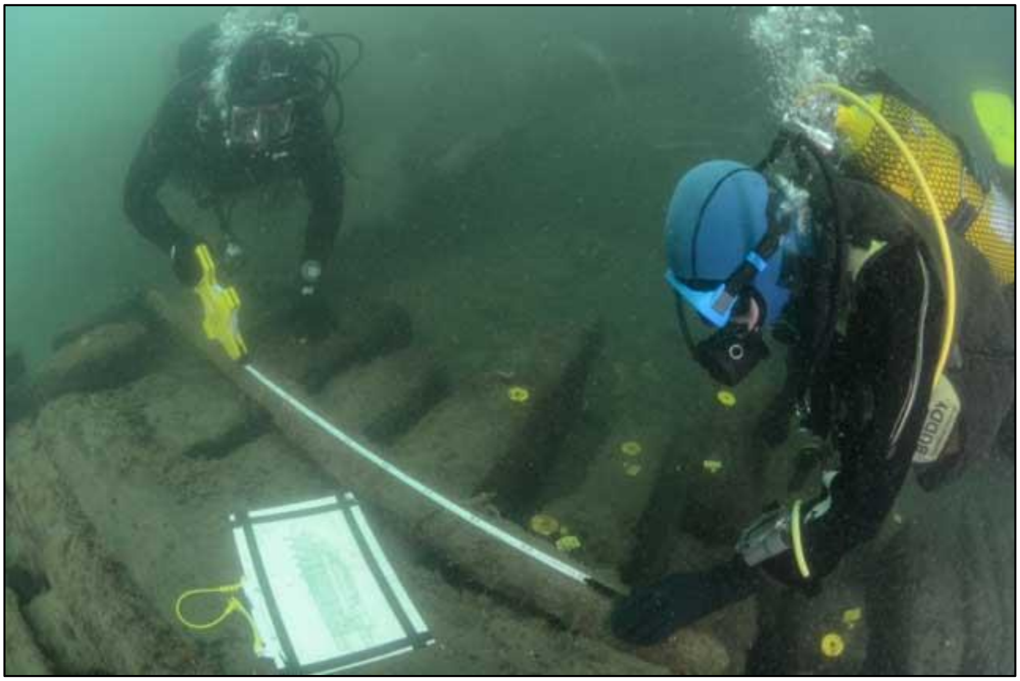
Ref:

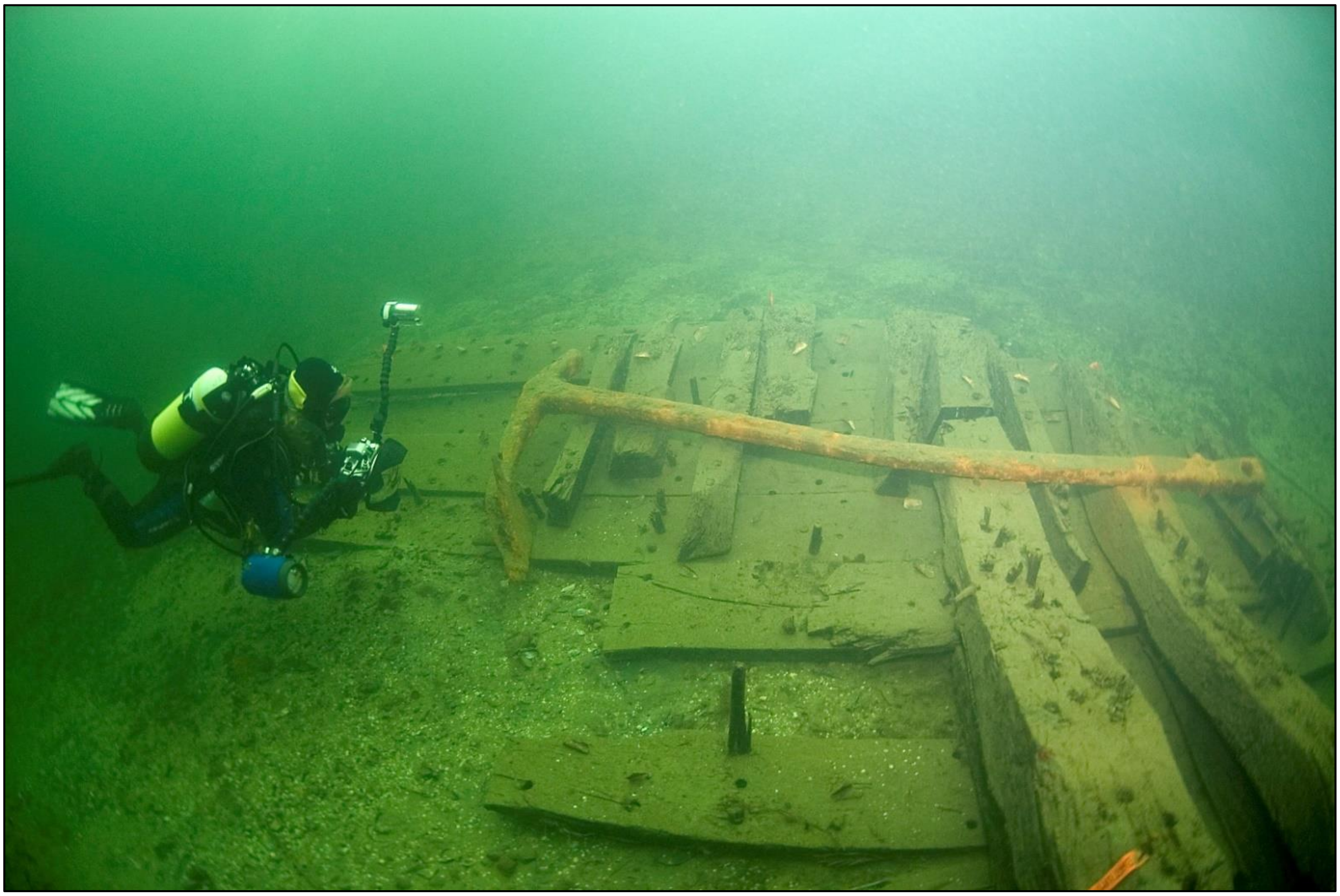
Gresham Ship

Princess Channel


Piece 3b
Piece 2
Piece 4
Piece 1
Piece 3a

Fundamentals
Chronology: 1550-1600
Place built – England ?
Place lost –
Preserved – 18 x 5 m
Length reconstructed – 24.7 m; Beam reconstructed – 7.71 m
Keel length – (19 m reconstructed)
Keel section (s/m) – 25 x 30 cm
Floors section (s/m) – 22 x 25 cm
R&S – 47 cm
Plank thickness – 7 cm





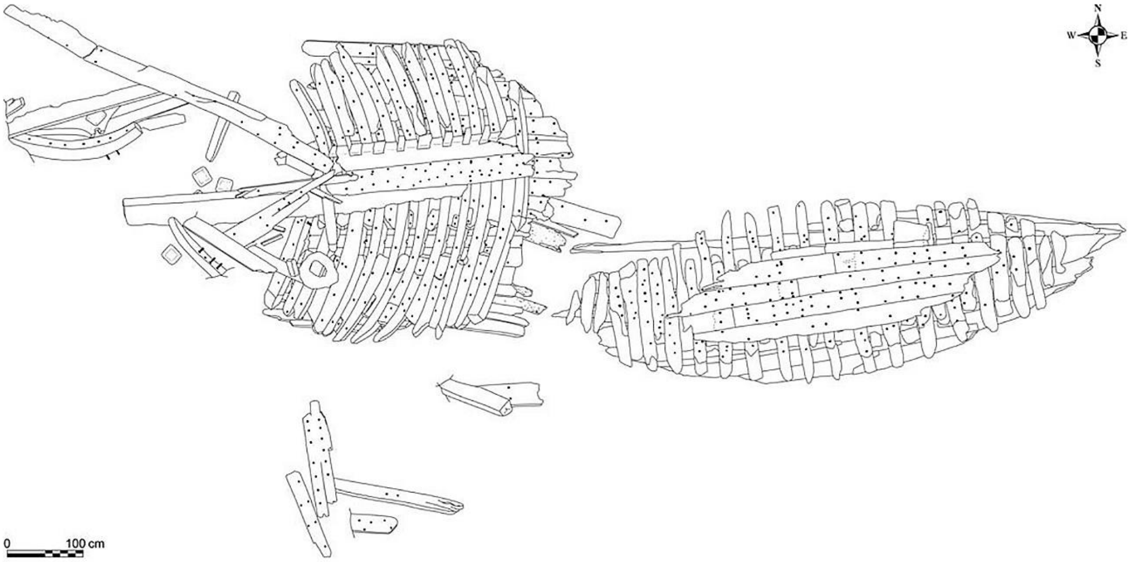
Construction Traits
Maststep – N/A
Floor/futtock connection – double dovetail
Planking fasteners – Nails square (predominantly treenailed)
Caulking – animal hair inlaid between plank seams
Sheathing – None
Keel/sternpost connection – N/A

Design Traits
Hull shape – 3 arcs
Construction marks –
Evidence for rising and narrowing -

Notes –

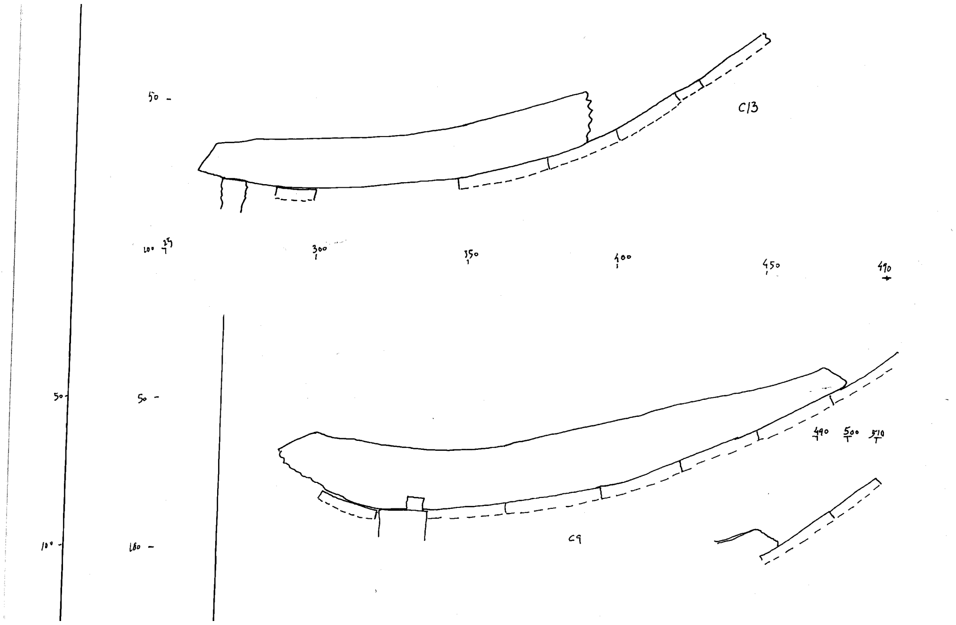
Ref:
Auer, J. and Firth, A., 2007, The 'Gresham Ship': an interim report on a 16th-century wreck from Princes Channel, Thames Estuary. *Post-Medieval Archaeology* **41**.2, 222-241.

Arade 1

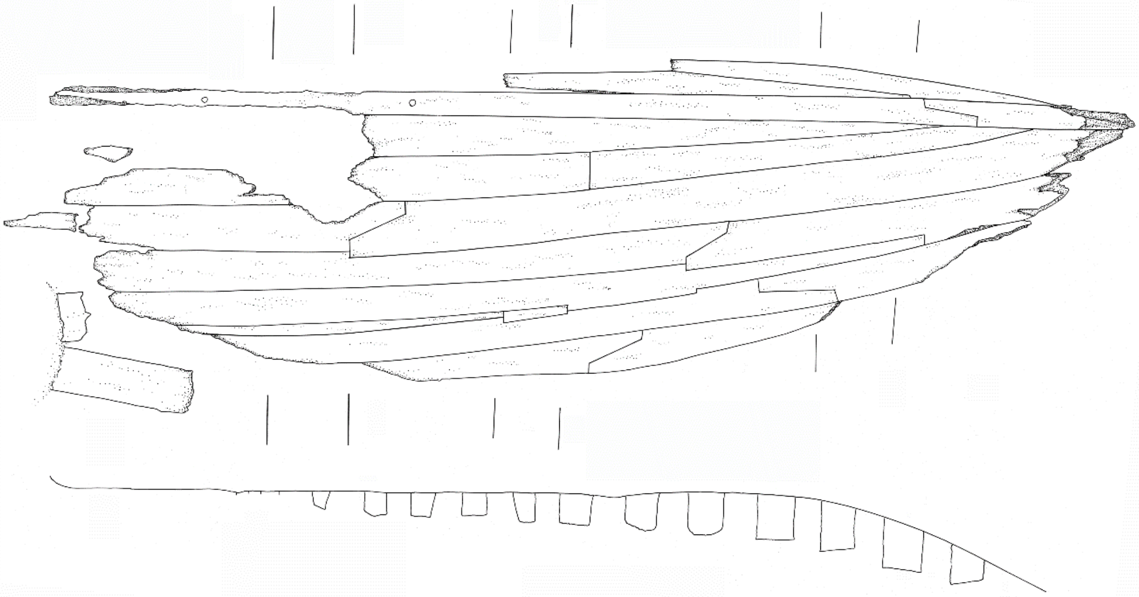


N
W
E
S
0
100 cm

Fundamentals
Chronology: 1550-1600
Place built – Brittany, France
Place lost –
Preserved – 7 x 3 m
Length reconstructed – N/A; Beam reconstructed – N/A
Keel length – (13.09 m reconstruction)
Keel section (s/m) – 15.5 x 13.5 cm
Floors section (s/m) 17.6 x 16.5 cm
R&S – 42 cm
Plank thickness – 5 c



50
C13
100
300
350
400
450
490
50
50
490
500
510
C9
100
100



Construction Traits
Maststep – Probably expanded keelson
Floor/futtock connection – Treenail fastened no scarfs
Planking fasteners – Nails square
Caulking – white paste
Sheathing – None
Keel/sternpost connection – N/A

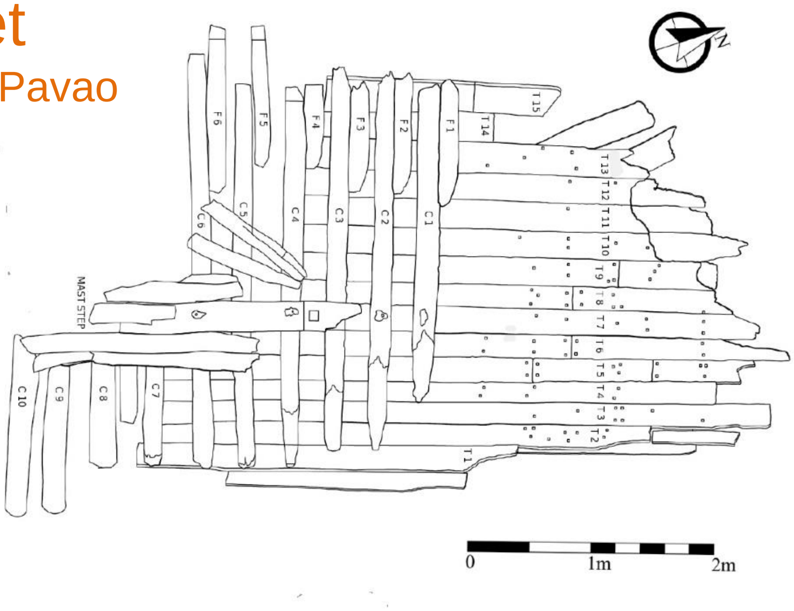
Design Traits
Hull shape – 1 arc
Construction marks –
Evidence for rising and narrowing -

Notes –

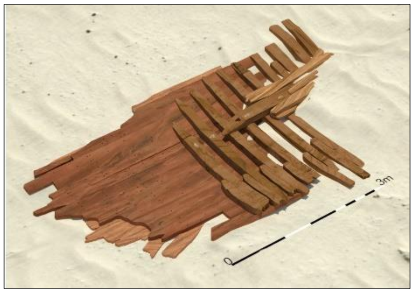
Ref:
Domínguez-Delmás, M., Nayling, N., Ważny, T., Loureiro, V. and Lavier, C., 2013, Dendrochronological Dating and Provenancing of Timbers from the Arade 1 Shipwreck, Portugal. *International Journal of Nautical Archaeology* **42**.1, 118-136.
Loureiro, V. and Alves, J. G., 2008, The Arade 1 Shipwreck: Preliminary Results of the 2004 and 2005 Field Seasons. *IJNA* **37**.2, 273-282.

Mljet

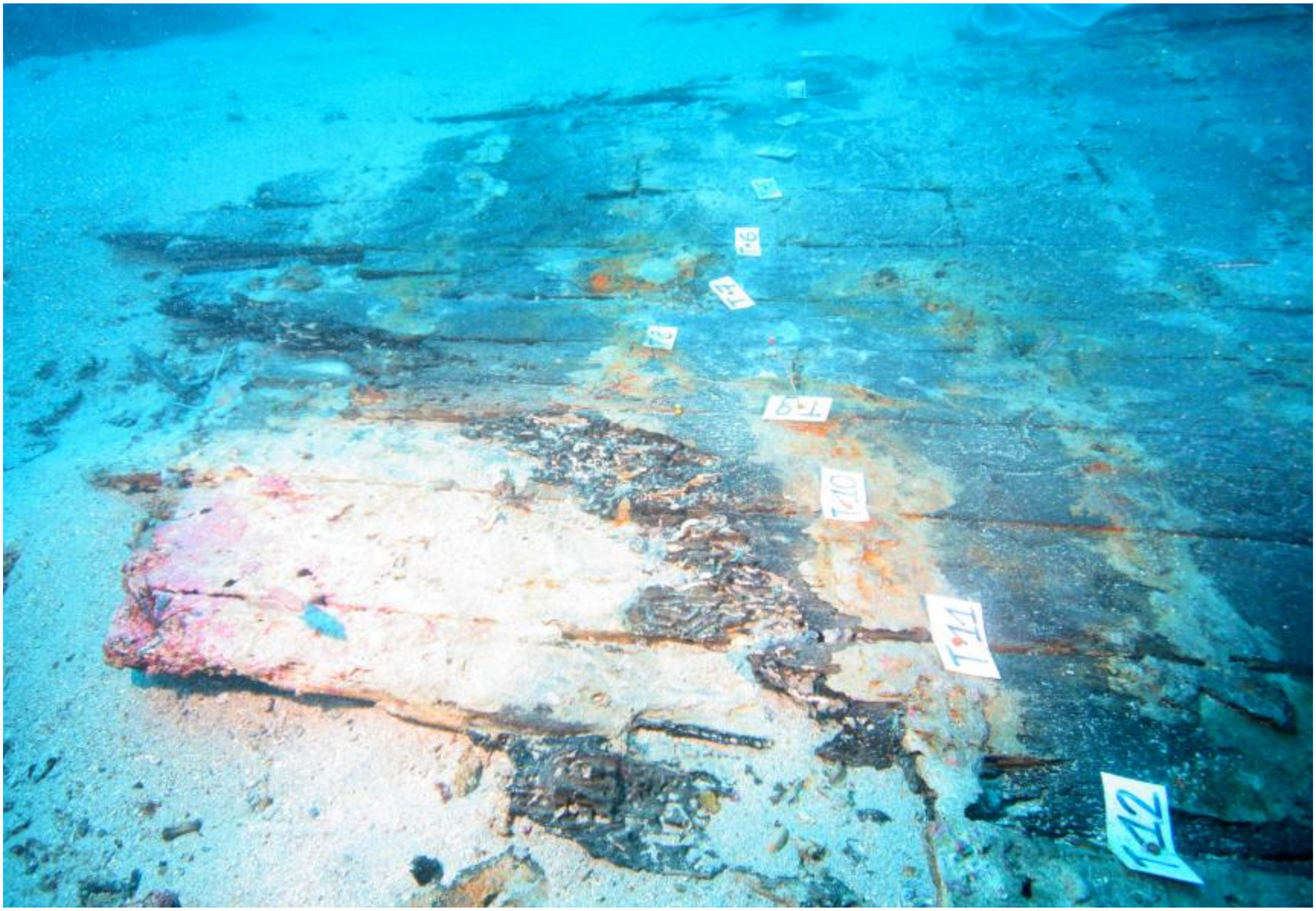
Sveti Pavao



F6
F5
F4
F3
F2
F1
T15
T14
T13
T12
T11
T10
T9
T8
T7
T6
T5
T4
T3
T2
T1
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
MAST STEP
N
0
1m
2m



Fundamentals
Chronology: 1550-1600
Place built – Venice?
Place lost – Croatia
Preserved – 6 x 3.7 m
Length reconstructed – 24 m; Beam reconstructed – 6.5 m
Keel length – ?
Keel section (s/m) – ? x ? cm
Floors section (s/m) – 15 x 15 cm
R&S – 40 cm
Plank thickness – 2 layers, 7.8 cm and 5 cm



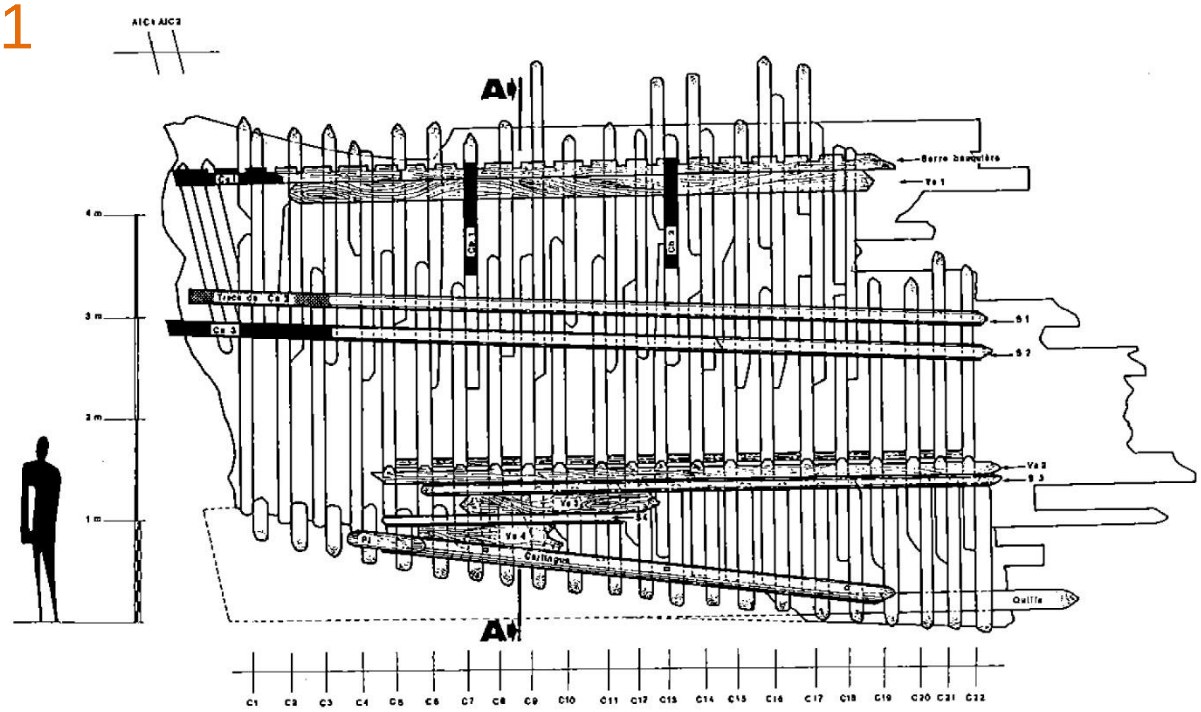
Construction Traits
Maststep – Mediterranean
Floor/futtock connection – shallow step
Planking fasteners – Iron nails (sq.?)
Caulking – ?
Sheathing – Double layered outer planking
Keel/sternpost connection - ?

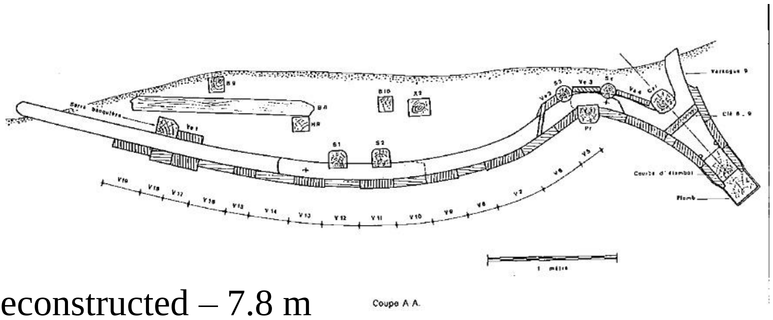
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes –

Ref.:
Beltrame, C.,

Calvi 1


AIC1 AIC2
A
Barre bauquière
Ve 1
Cs 1
Cb 1
Cb 2
Trace de Cs 2
Cs 3
S 1
S 2
Ve 2
S 3
Ve 3
S4
Ve 4
Pl
Carlingue
Quille
4 m
3 m
2 m
1 m
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22


Barre bauquière
Ve 1
S1
S2
Ve 2
S3
Ve 3
S4
Ve 4
Pr
Varangue 9
Clé 8 - 9
Courbe d'étambot
Plomb
1 mètre
Coupe A A.

Fundamentals

Chronology: 1550-1600

Place built – ?

Place lost –

Preserved – 11 x 4 m

Length reconstructed – 25 m; Beam reconstructed – 7.8 m

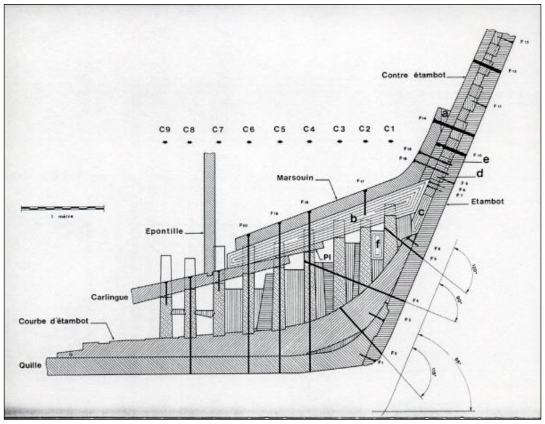
Keel length – 17 m

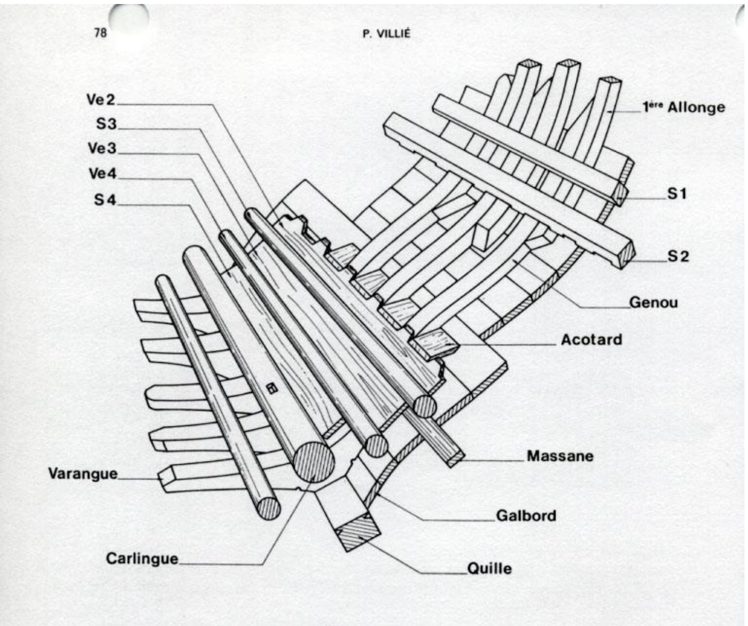
Keel section (s/m) – 21 x 22 cm

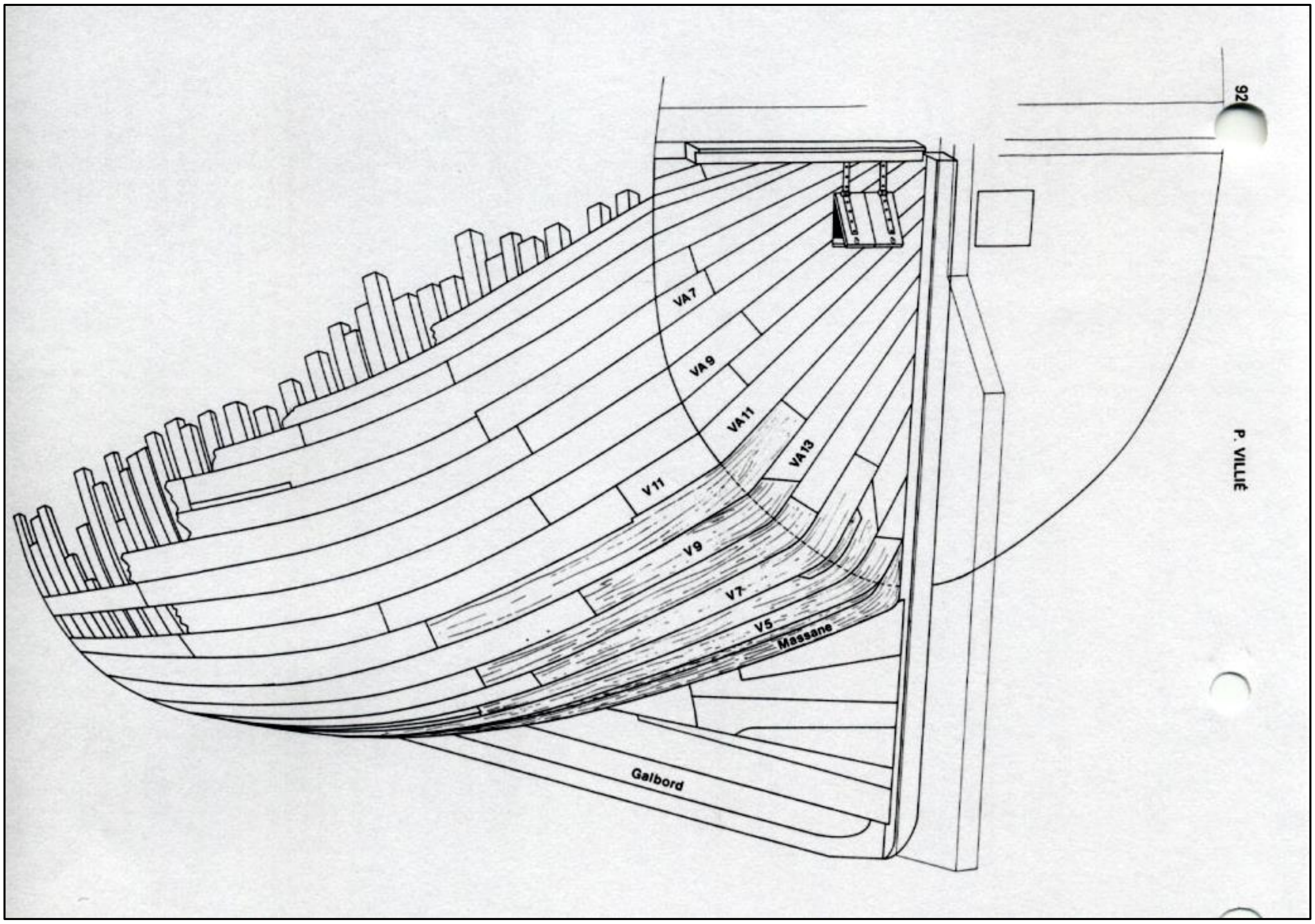
Floors section (s/m) – 13.5 x 23 cm

R&S – 25 cm

Plank thickness – 5.5 cm


Contre étambot
C9
C8
C7
C6
C5
C4
C3
C2
C1
Marsouin
Etambot
e
d
c
b
f
Pl
Epontille
1 mètre
Carlingue
Courbe d'étambot
Quille


78
P. VILLIÉ
Ve2
S3
Ve3
Ve4
S4
1ère Allonge
S1
S2
Genou
Acotard
Massane
Varangue
Galbord
Carlingue
Quille


92
P. VILLIÉ
VA7
VA9
VA11
VA13
V11
V9
V7
V5
Massane
Galbord

Construction Traits
Maststep – N/A
Floor/futtock connection – shallow hook scarfs
Planking fasteners – Nails round
Caulking – ?
Sheathing – lead sheathing on keel and garboard
Keel/sternpost connection – Square scarf

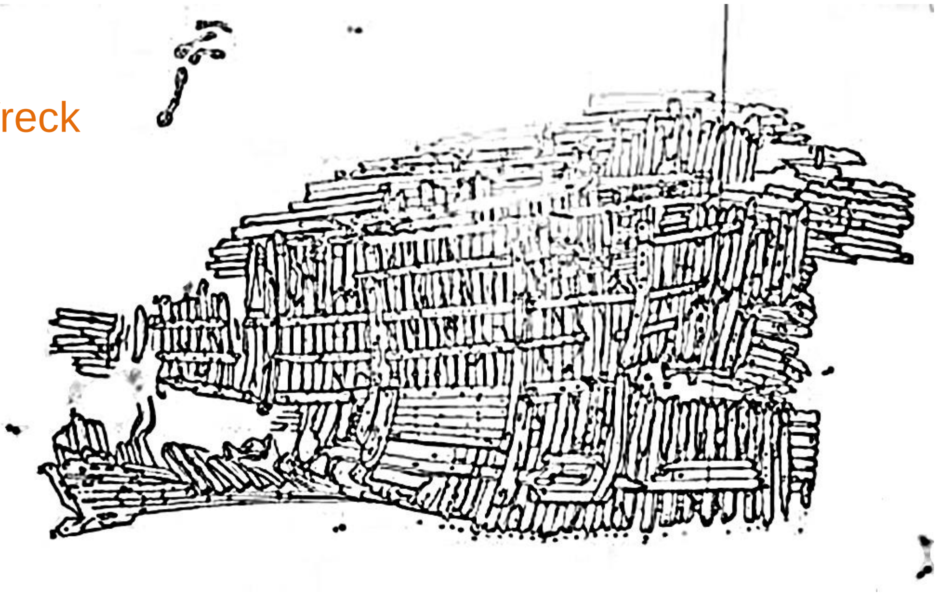
Design Traits
Hull shape – possibly flat with +4 arcs
Construction marks –
Evidence for rising and narrowing -

Notes – Master frame not preserved

Ref:
Villié, P., 1990, L'épave Calvi I. *Cahiers d'archéologie subaquatique* **9**, 83-130.

IDM-002

Fort San Sebastian Wreck



Fundamentals

Chronology: 1550-1600

Place built – Portugal ?

Place lost –

Preserved – ? x ? m

Length reconstructed – ? m; Beam reconstructed – ? m

Keel length – +/- 17.2 m

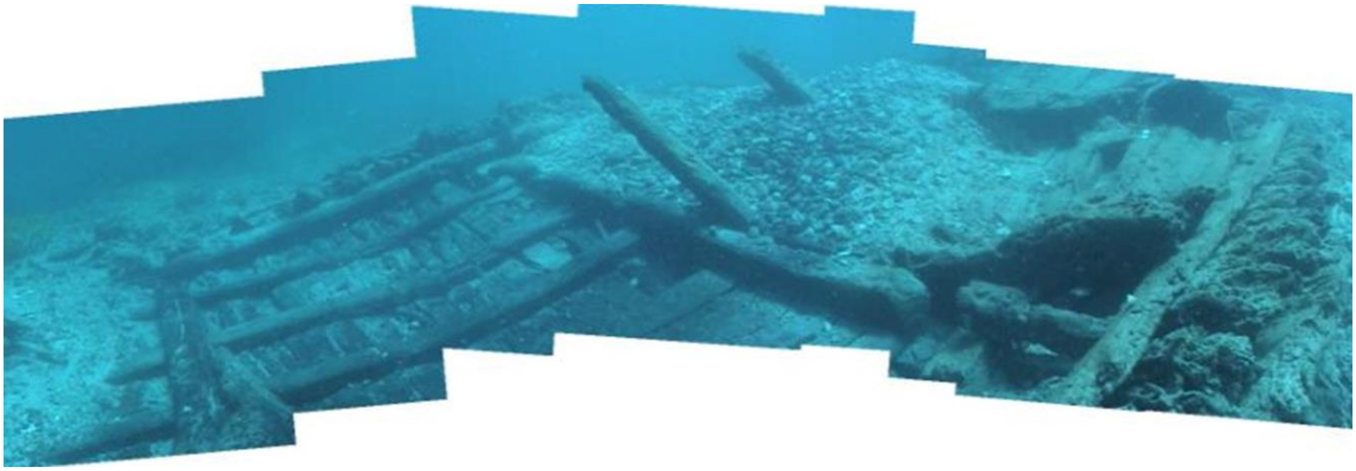
Keel section (s/m) – ? x ? cm

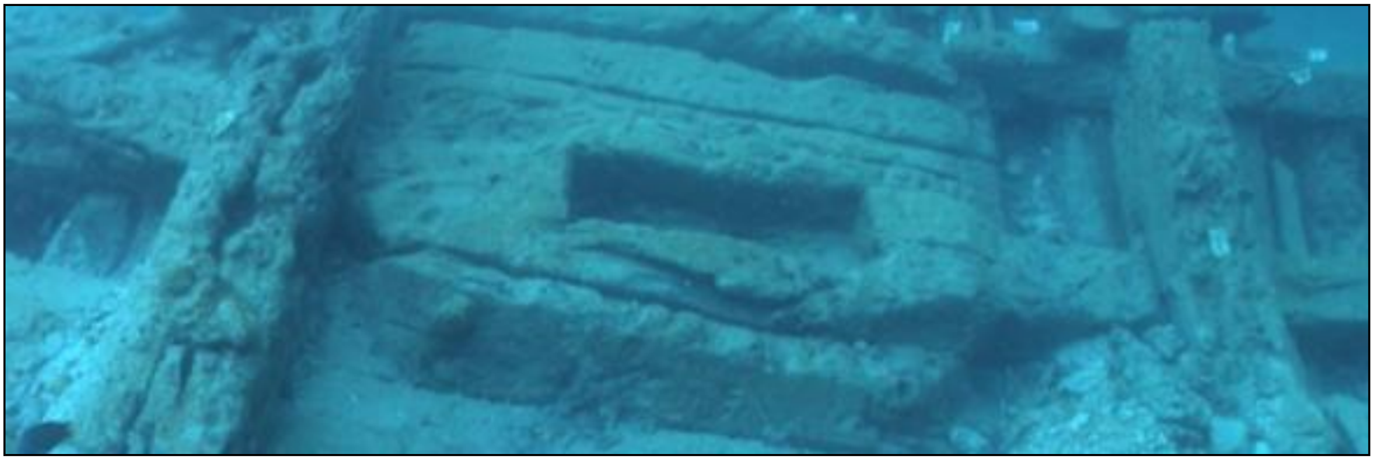
Floors section (s/m) – ? x ? cm

R&S – ? cm

Plank thickness – ? cm

MOZ 2002
CLASSIFIED



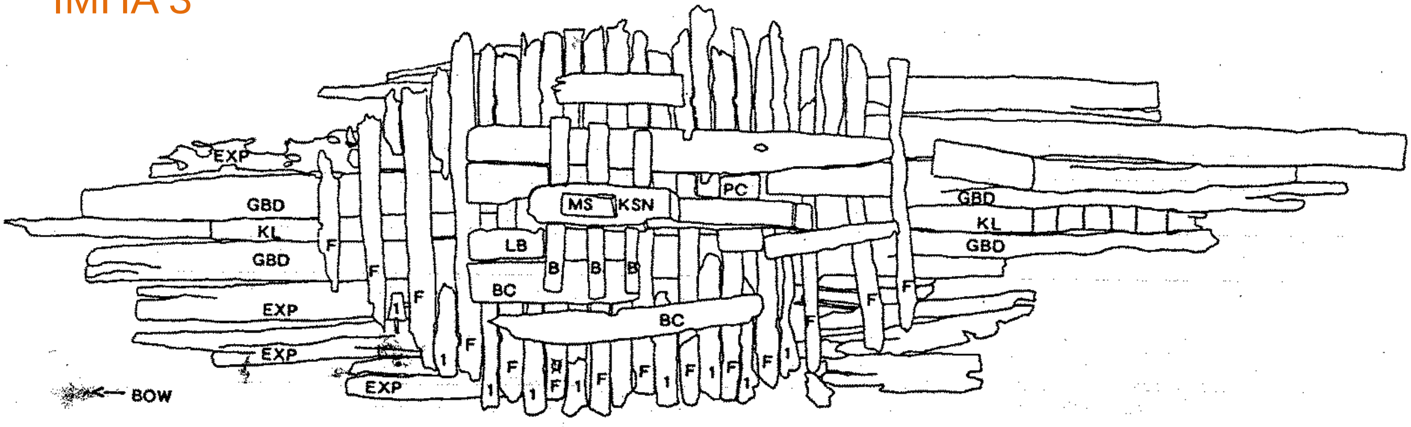


Construction Traits
Maststep – Expanded Keelson
Floor/futtock connection – dovetails
Planking fasteners – ?
Caulking – ?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –
Notes – destroyed by treasure hunters

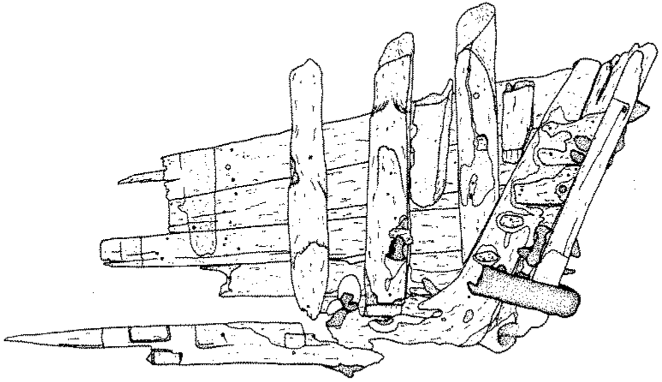
Western Ledge

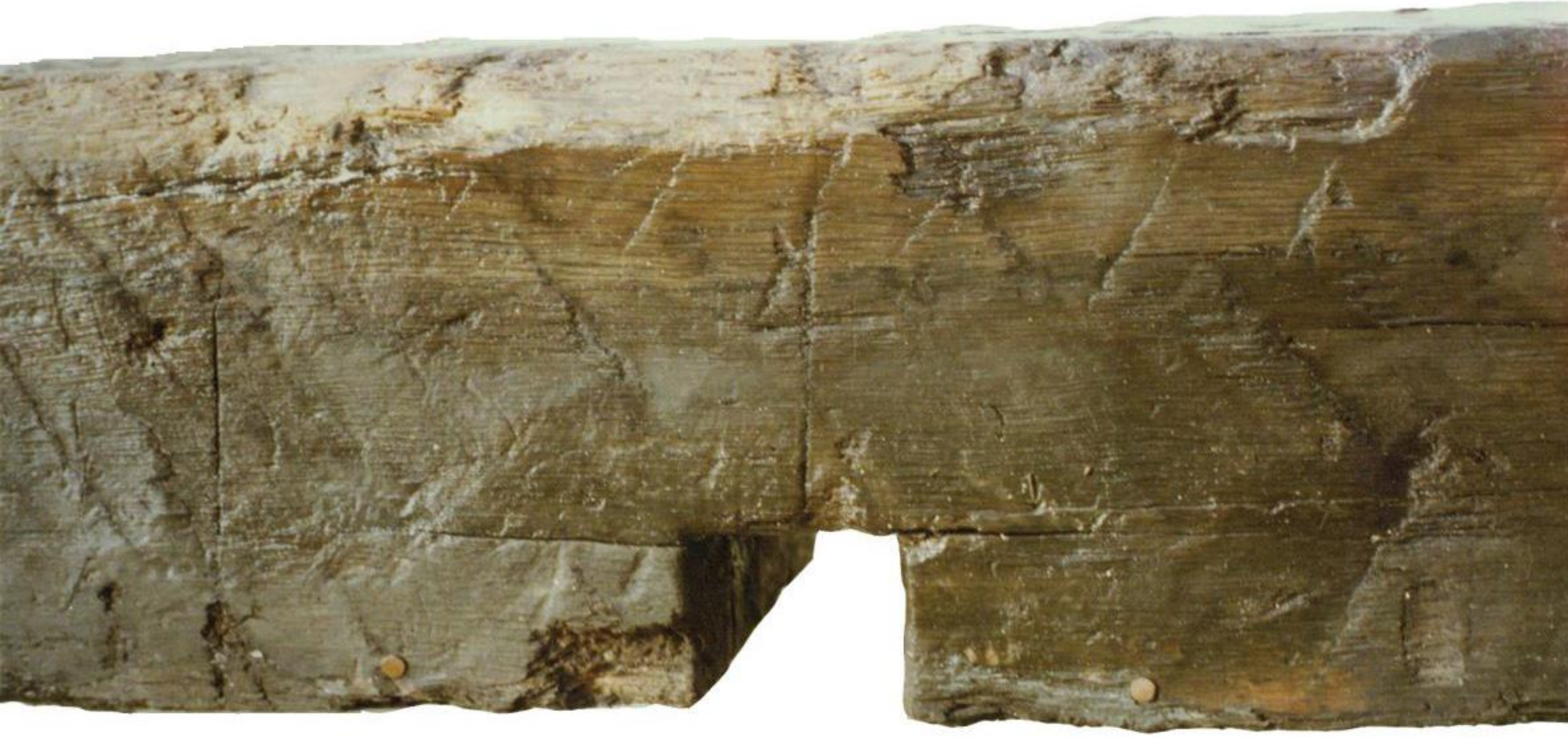
IMHA 3



EXP
GBD
KL
GBD
EXP
EXP
EXP
BOW
F
F
F
1
1
F
LB
BC
MS
KSN
PC
B
B
B
BC
F
1
F
1
F
1
F
F
1
F
1
F
F
1
F
GBD
KL
GBD

Fundamentals
Chronology: 1550-1600
Place built – Spain ?
Place lost –
Preserved – 10.7 x 4 m
Length reconstructed – 23 m; Beam reconstructed – 6 m
Keel length – estimated 13.5 m
Keel section (s/m) – 23 x 22 cm
Floors section (s/m) – 16 x 18 cm
R&S – 43 cm
Plank thickness – 5.5 cm





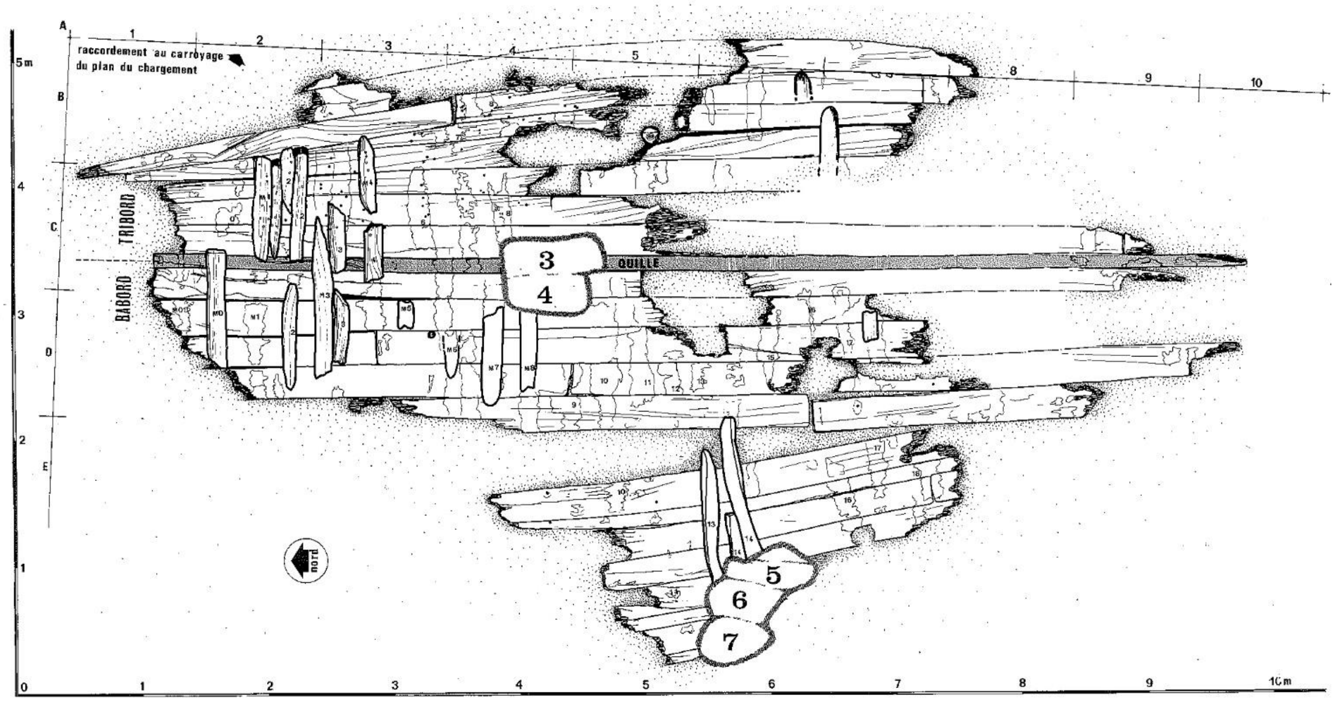
Construction Traits
Maststep – Expanded keelson
Floor/futtock connection – dovetail
Planking fasteners – Nails squared
Caulking – Limited to treenails
Sheathing – lead strips
Keel/sternpost connection – N/A

Design Traits
Hull shape – 4 arcs
Construction marks – Possible marks on floors directly above keel
Evidence for rising and narrowing - P. Bojakowski suggests rounded floor timbers

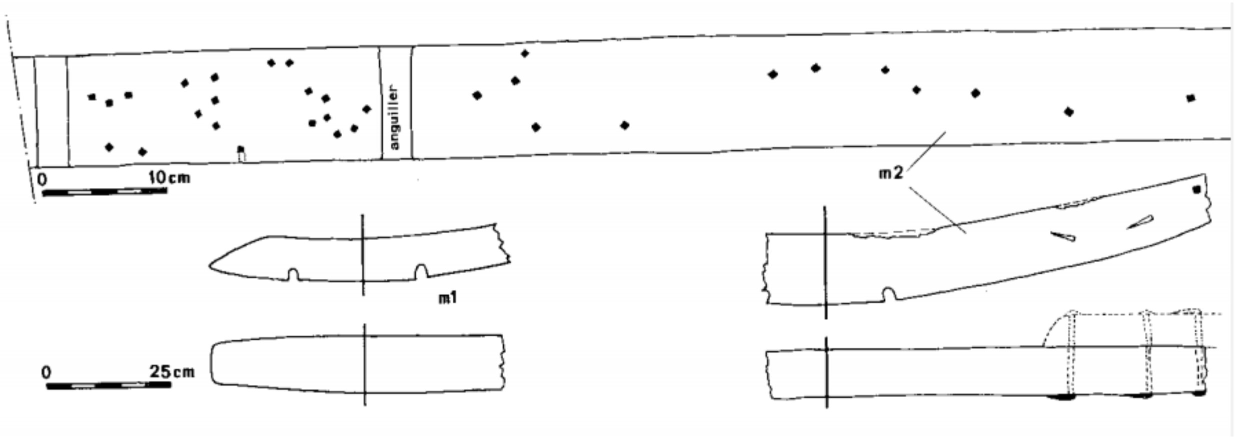
Notes –

Ref:
Bojakowski, P., 2011, The Western Ledge Reef Wreck: continuing research on the late 16th-/early 17th-century Iberian shipwreck from Bermuda. *Post-Medieval Archaeology* **45**.1, 18-40.

Cap Lardier 1


raccordement au carroyage
du plan du chargement
TRIBORD
BABORD
QUILLE
3
4
5
6
7
nord
A
B
C
D
E
5 m
10 m

Fundamentals
Chronology: 1550-1600
Place built – ?
Place lost –
Preserved – 9 x 4.5 m
Length reconstructed – 20 m; Beam reconstructed – m
Keel length – +8.8 m
Keel section (s/m) – 9.8 x 13.3 cm
Frames section (s/m) – 11.5 x 8.5 cm
R&S – 30.5 cm
Plank thickness – 4.3 cm



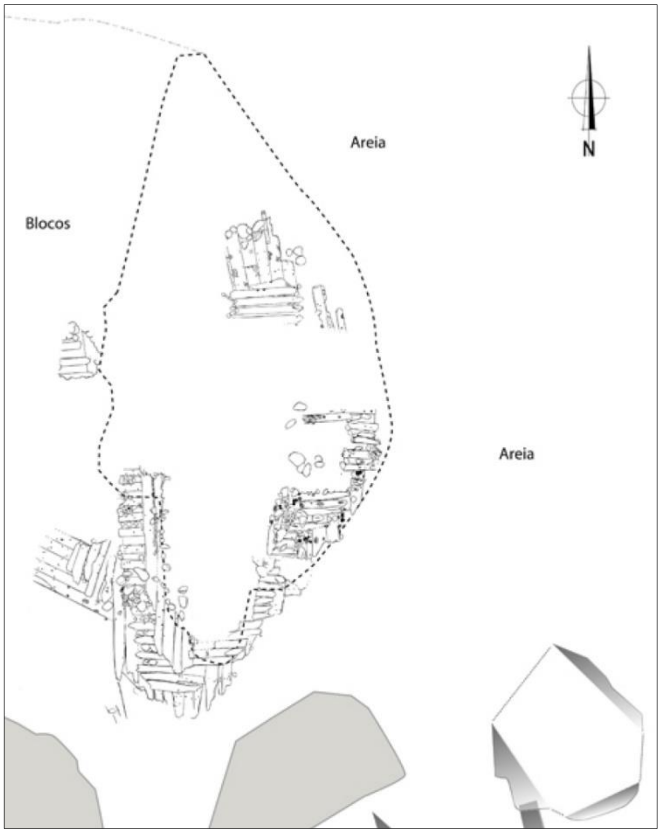
Construction Traits
Maststep – N/A
Floor/futtock connection – Overlap nail clenched
Planking fasteners – Nails square
Caulking – ?
Sheathing – N/A
Keel/sternpost connection – N/A

Design Traits
Hull shape – N/A
Construction marks –
Evidence for rising and narrowing –

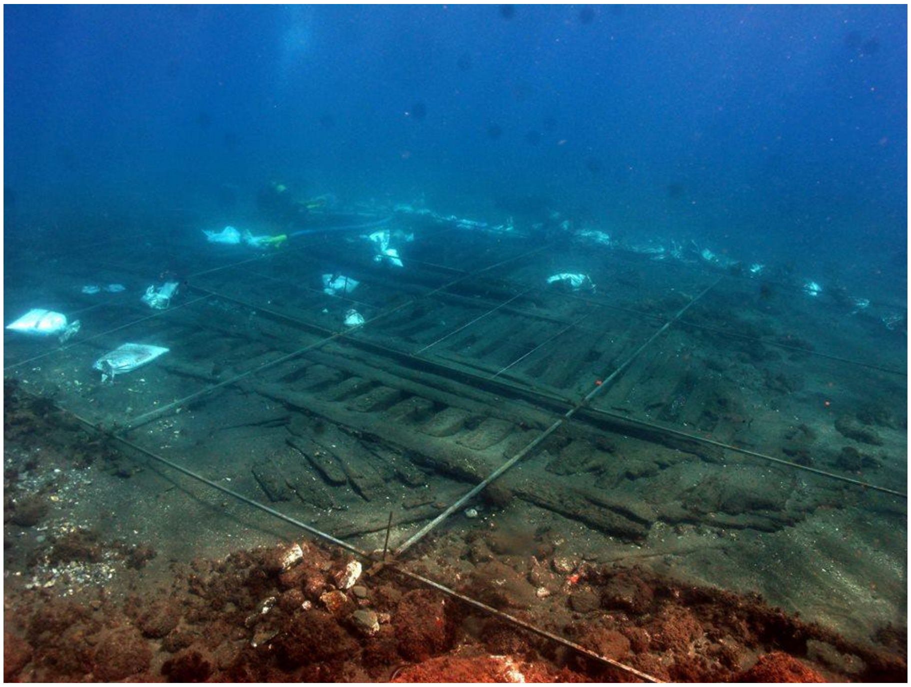
Notes –

Refs.
Joncheray, J.-P., 1991. “L’épave dite des ardoises, au Cap Lardier. Un caboteur ligure de la fin du XVI siècle”, in …

Angra B



Fundamentals
Chronology: 1550-1650
Place built – Spain ?
Place lost –
Preserved – 15 x 11 m ?
Length reconstructed – 24,8 m; Beam reconstructed – 7.76 m
Keel length – ? m
Keel section (s/m) – 27-29.5 x 15 cm
Keelson length – 1.3 m
Keelson section (s/m) – 22 x 22 cm
Floors section (s/m) – floors 25 x 20 cm
R&S – 39.39 cm
Plank thickness – 5-6 cm



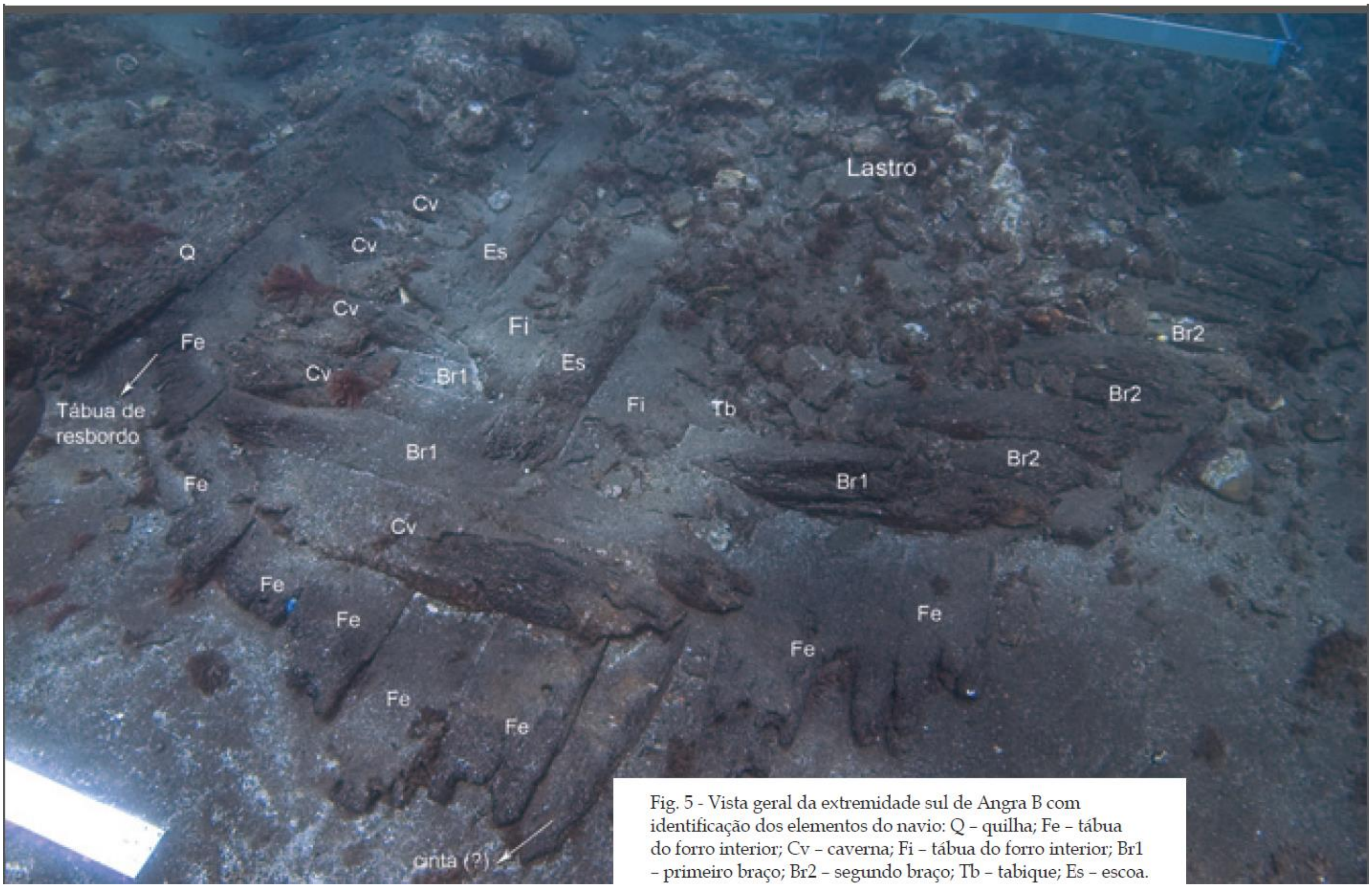

Lastro
Cv
Q
Cv
Es
Cv
Fi
Br2
Fe
Es
Cv
Br1
Fi
Tb
Br2
Tábua de resbordo
Br1
Br2
Fe
Br1
Cv
Fe
Fe
Fe
Fe
Fe
Fe
cinta (?)

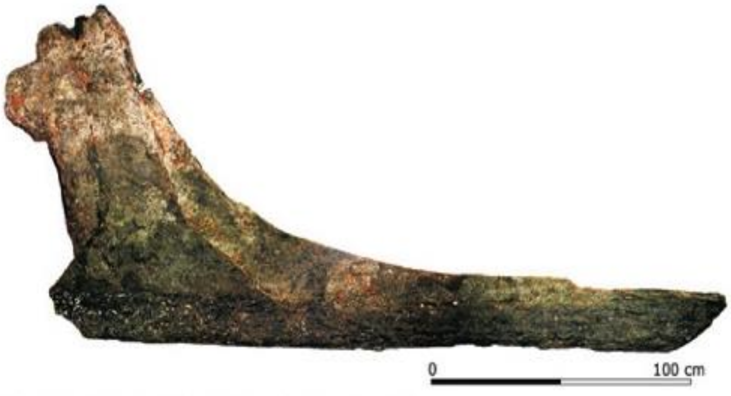
Fig. 5 - Vista geral da extremidade sul de Angra B com identificação dos elementos do navio: Q – quilha; Fe – tábua do forro interior; Cv – caverna; Fi – tábua do forro interior; Br1 – primeiro braço; Br2 – segundo braço; Tb – tabique; Es – escoa.

Construction Traits
Maststep – ?
Floor/futtock connection – Overlap w/ iron nails ?
Planking fasteners – Treenails and iron nails (sq.)
Caulking– Oakum between planks
Sheathing – Lead straps (lower hull)
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

Angra B1



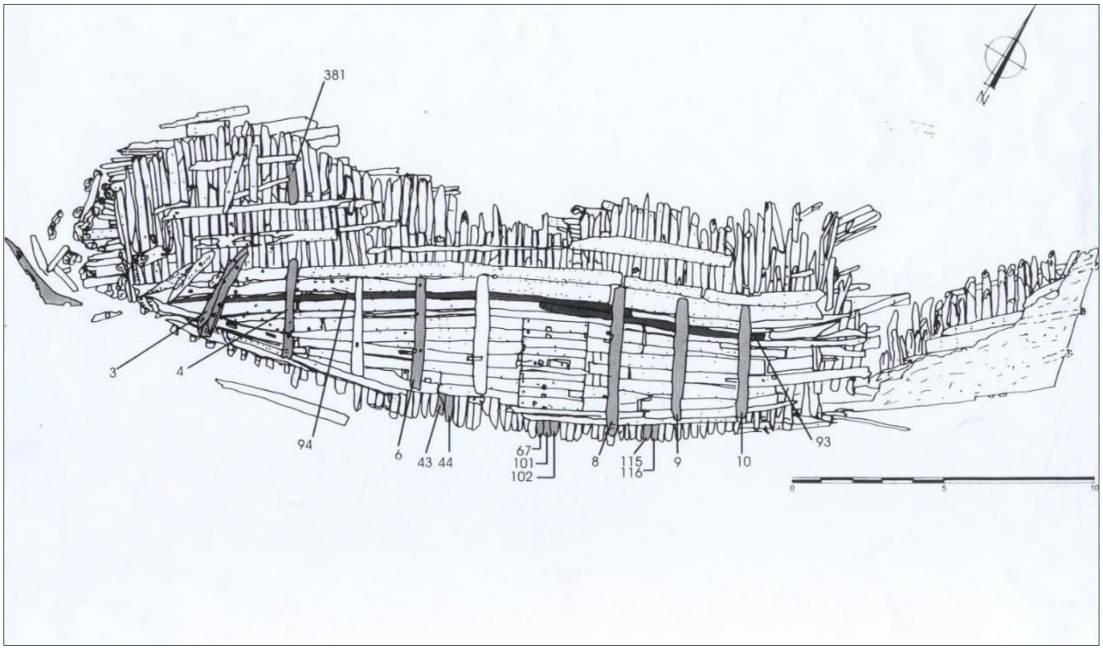
Fundamentals
Chronology: 1550-1650
Place built – ?
Place lost –
Preserved – 3 x 0.2 m
Length reconstructed – N/A; Beam reconstructed – N/A
Keel length – N/A
Keel section (s/m) – N/A
Frames section (s/m) – N/A
R&S – N/A
Plank thickness – N/A

Construction Traits
Maststep – N/A
Floor/futtock connection – N/A
Planking fasteners – Nails
Caulking – N/A
Sheathing – N/A
Keel/sternpost connection – Scarfed to heel

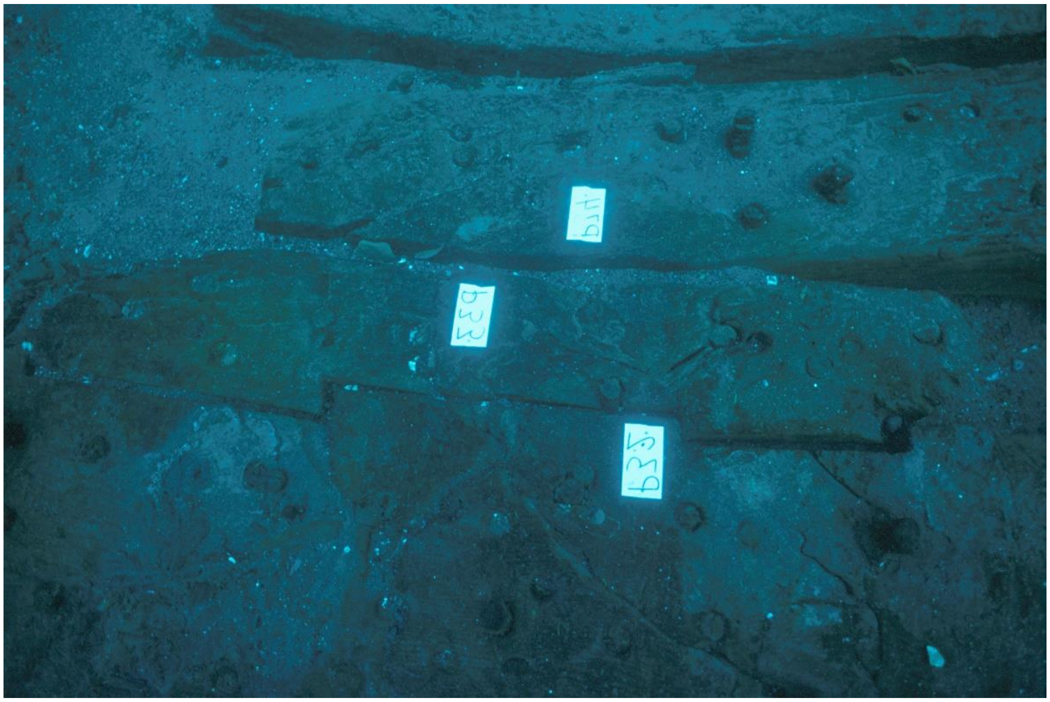
Design Traits
Hull shape – N/A
Construction marks –
Evidence for rising and narrowing –

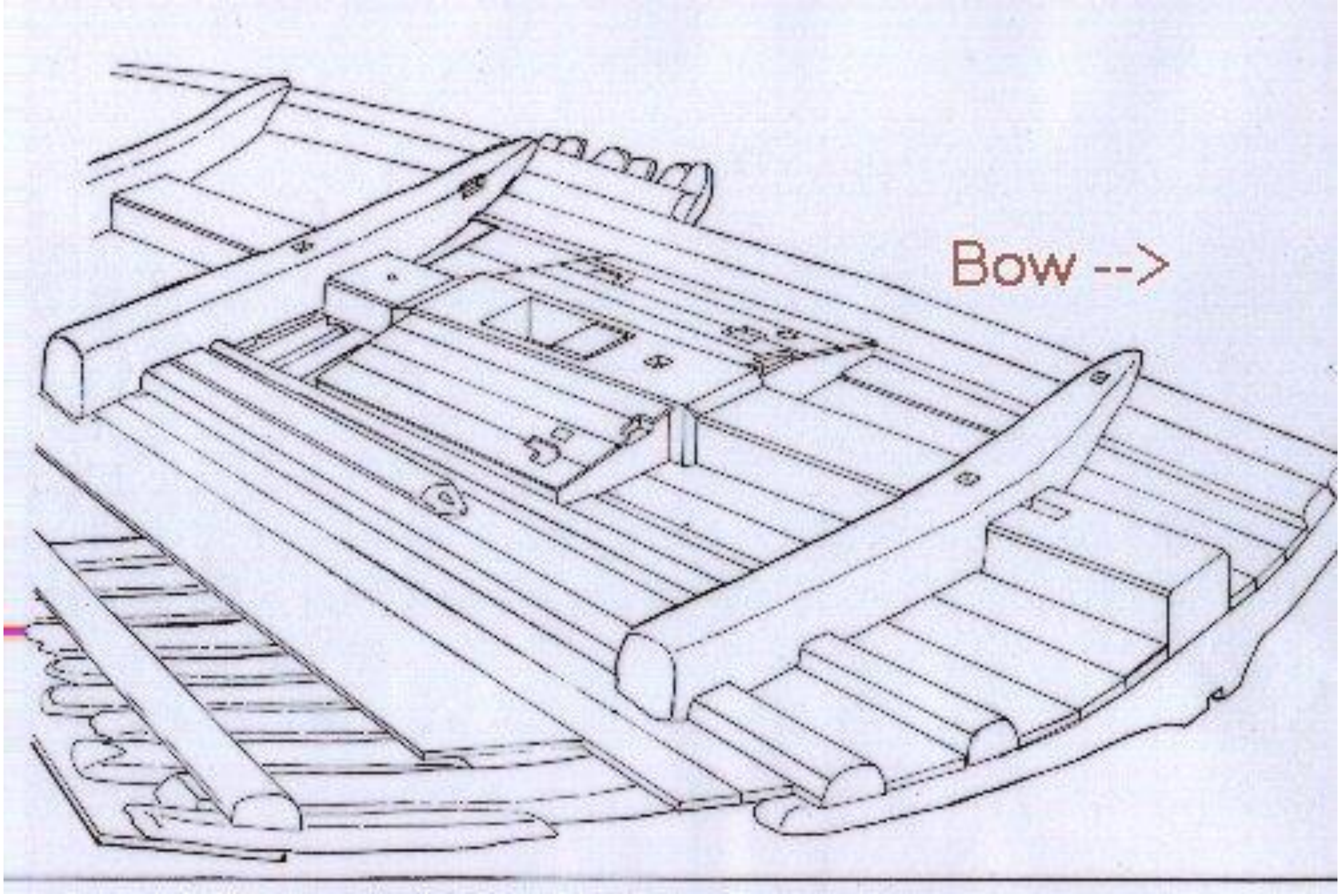
Notes – This piece appeared near the Angra B site, but both its characteristics and its archaeological context prevented it from being associated with the structure of the Angra B vessel.

Angra D


381
3
4
94
6
43 44
67
101
102
8
115
116
9
10
93
N
0
5
10

Fundamentals
Chronology: 1550-1650
Place built – ?
Place lost –
Preserved – 35 x 9 m
Length reconstructed – 28 m; Beam reconstructed – 8.4 m; Draft reconstructed – 4.2 m
Keel length – 19.71 m
Keel section (s/m) – 45 x 30 cm
Floors section (s/m) – 25 x 19 cm
R&S – 44 cm
Plank thickness – 6-7 cm





Construction Traits
Maststep – Expanded keelson
Floor/futtock connection –
Planking fasteners – Nails square
Caulking– N/A
Sheathing – Lead strips over all of hull
Keel/sternpost connection – ?

Design Traits
Hull shape – Flat floor + 2-3 arcs ?
Construction marks –
Evidence for rising and narrowing -

Notes –

Ref:
Garcia, C. and Monteiro, P., 2001, The excavation and dismantling of Angra D, a probable Iberian seagoing ship, Angra bay, Terceira Island, Azores, Portugal. Preliminary assessment. In F. J. S. Alves (ed.), *Proceedings of the International Symposium on Archaeology of Medieval and Modern Ships of Iberian-Atlantic Tradition*, 431-447. Lisbon.

Angra F

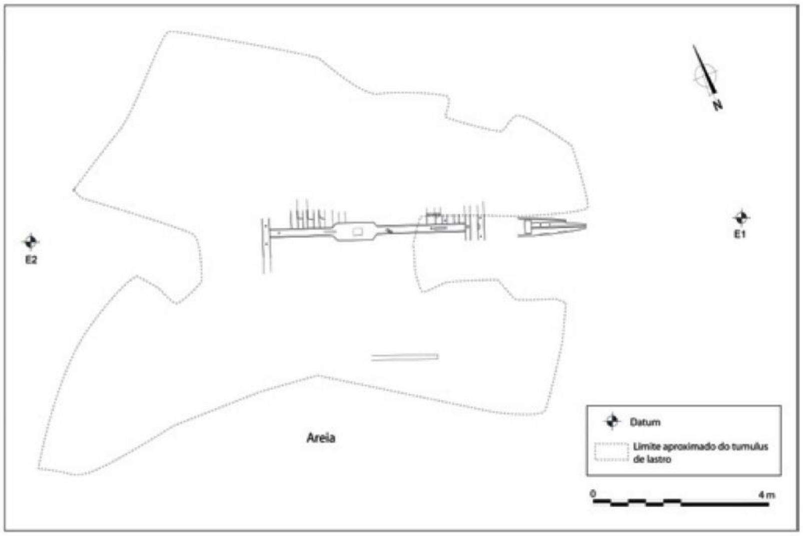

N
E2
E1
Areia
Datum
Limite aproximado do tumulus de lastro
0
4 m

Fig. 8 - Esboço preliminar de Angra F.

Fundamentals
Chronology: 1550-1650
Place built – ?
Place lost –
Preserved – 15 x 7 m
Length reconstructed – 16-17 m; Beam reconstructed – ? m
Keel length – 1.3 m
Keel section (s/m) – 10.2 x 9 cm
Floors section (s/m) – floors 10-19 x ? cm
R&S – ? cm
Plank thickness – 4-5 cm

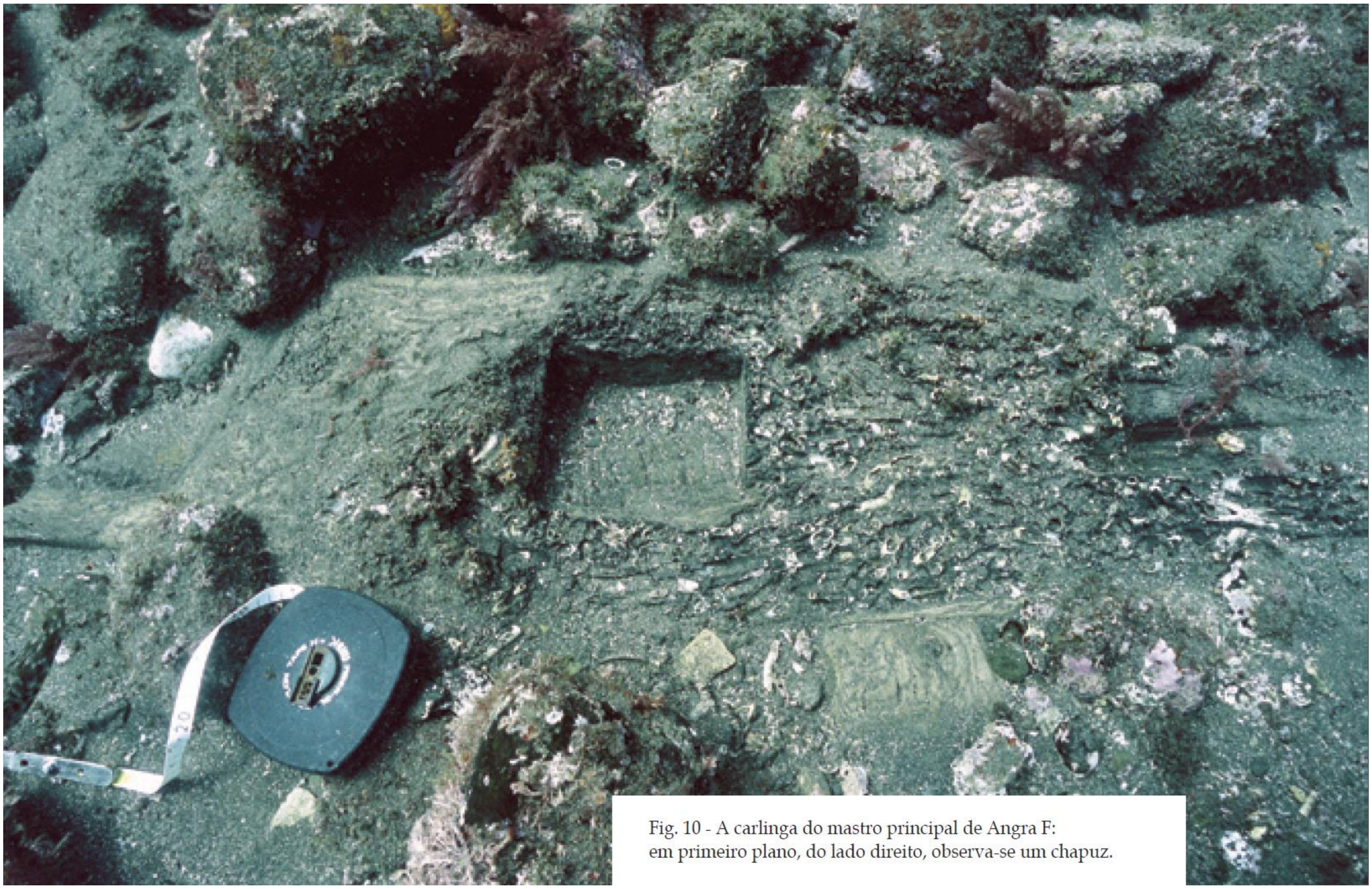


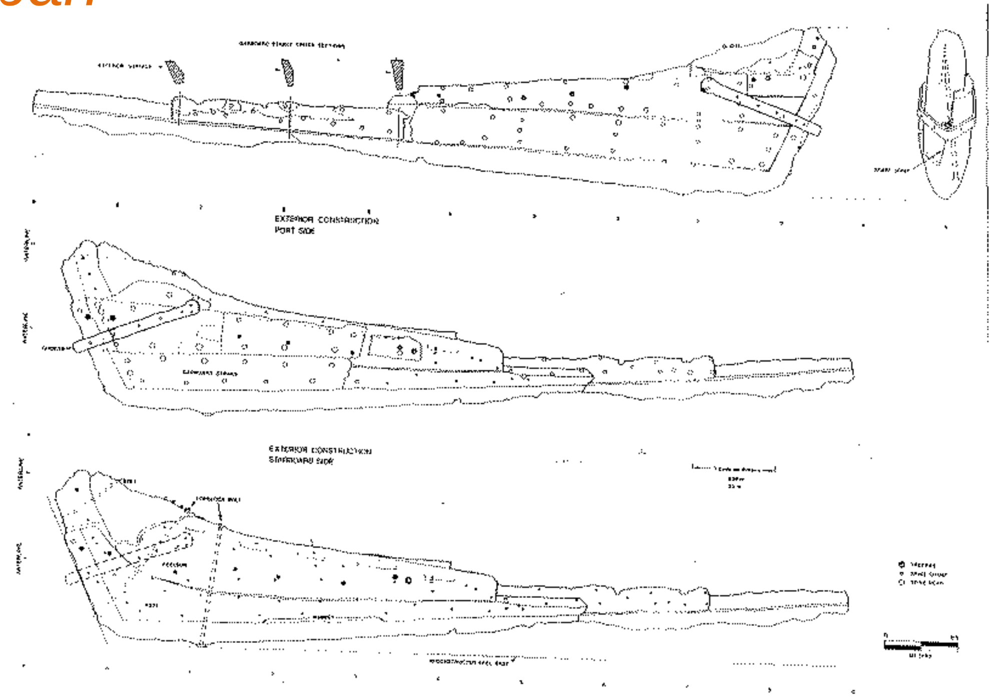
Fig. 10 - A carlinga do mastro principal de Angra F:
em primeiro plano, do lado direito, observa-se um chapuz.

Construction Traits
Maststep – Expanded keelson
Floor/futtock connection – Treenails and iron nails
Caulking – ?
Sheathing – ?
Planking fasteners – Treenails and iron nails (sq.)
Keel/sternpost connection - ?

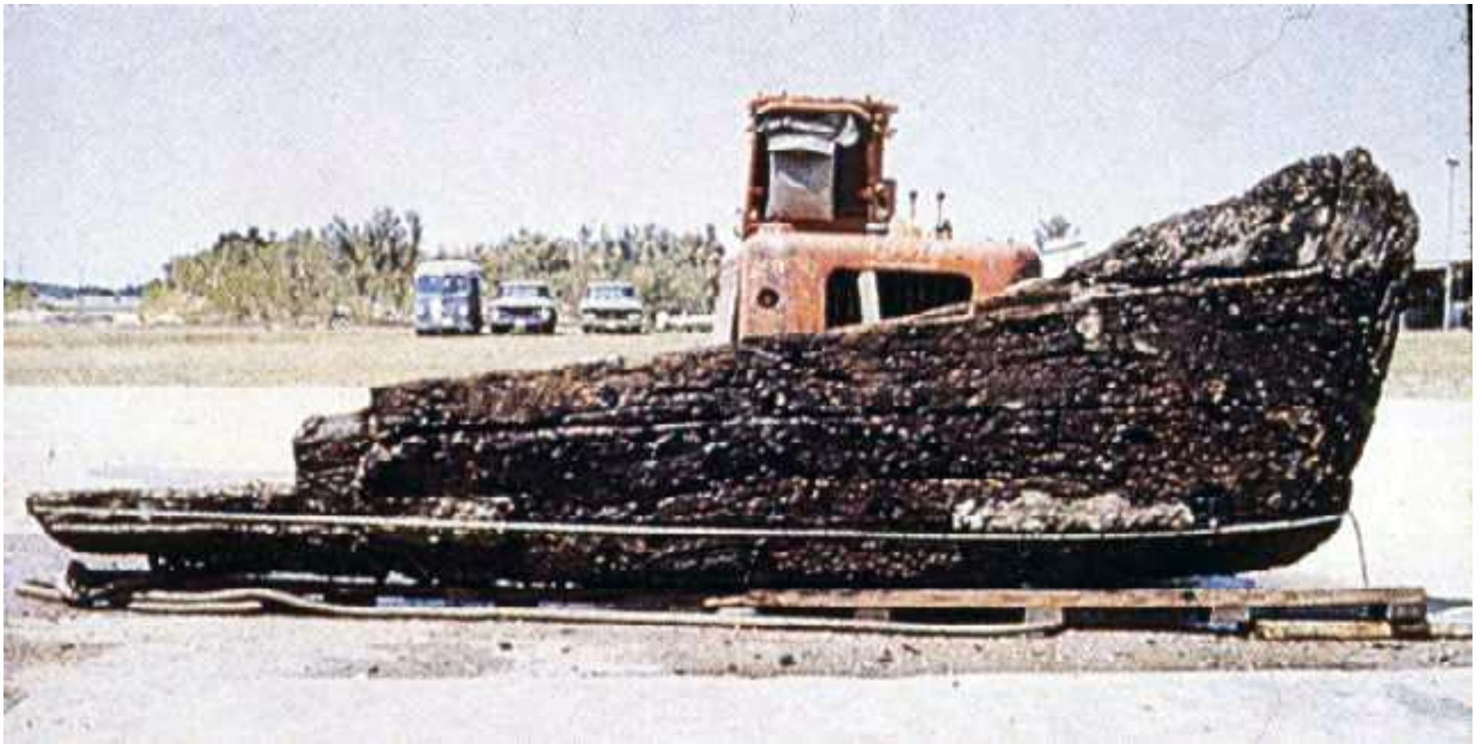
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

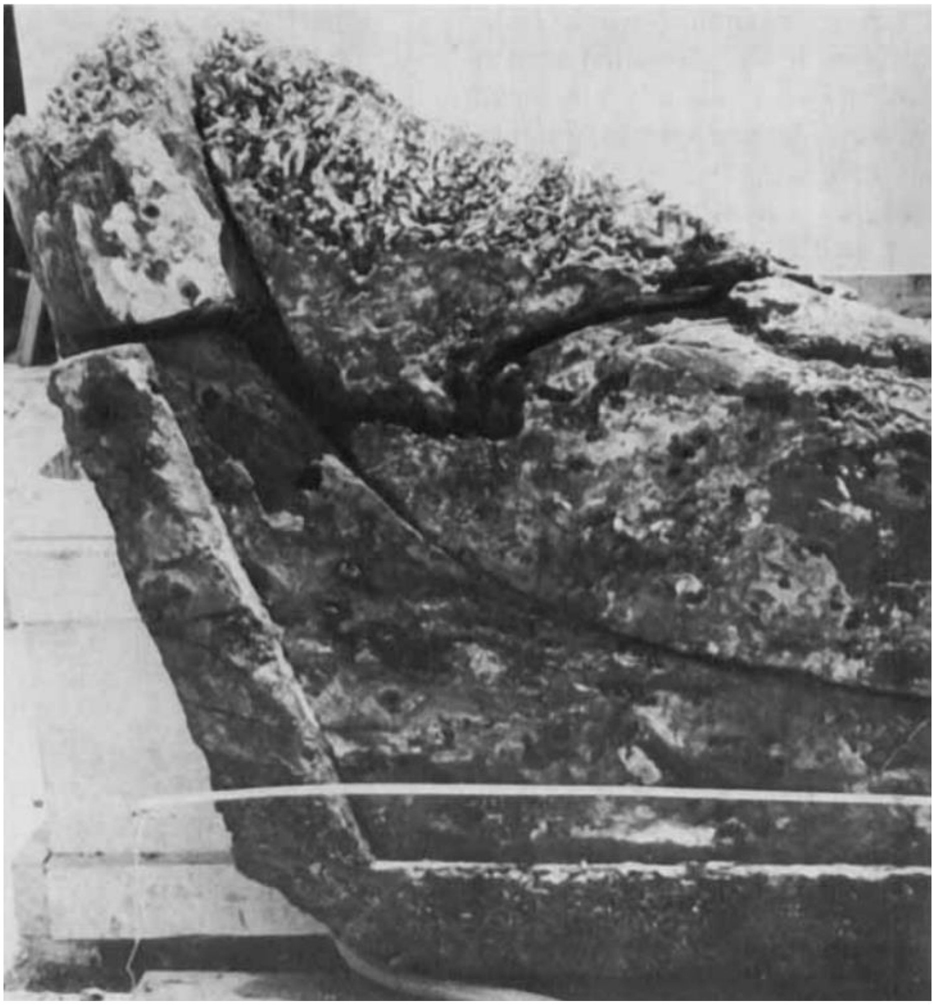
Notes –

San Esteban


EXTERIOR CONSTRUCTION
PORT SIDE
EXTERIOR CONSTRUCTION
STARBOARD SIDE

Fundamentals
Chronology: 1554
Place built – Spain ?
Place lost –
Preserved – 5.1 x 0.31 m
Length reconstructed – 20.12 m; Beam reconstructed – 5.49 m
Keel length – estimated 14.48 m
Keel section (s/m) – 31 / 27 cm
Floors section (s/m) – N/A
R&S – N/A
Plank thickness – 10 cm





Construction Traits
Maststep – N/A
Floor/futtock connection – N/A
Planking fasteners – Nails square
Caulking – Oakum and animal hair between planks
Sheathing – Lead strips in seams
Keel/sternpost connection – Vertical scarf

Design Traits
Hull shape – N/A
Construction marks –
Evidence for rising and narrowing -

Notes – Only this fragment of the stern survived mailboxing by archaeologists in the 1970s.

Ref:
Rosloff, J. and Arnold, J. B. I., 1984, The keel of the San Esteban (1554): continued analysis. *IJNA* **13**.4, 287-296.

Rocciu

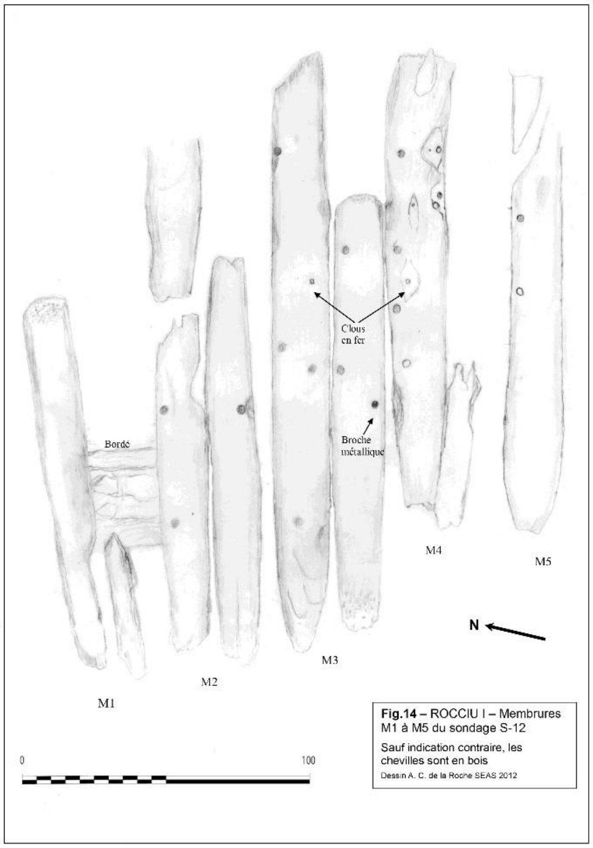
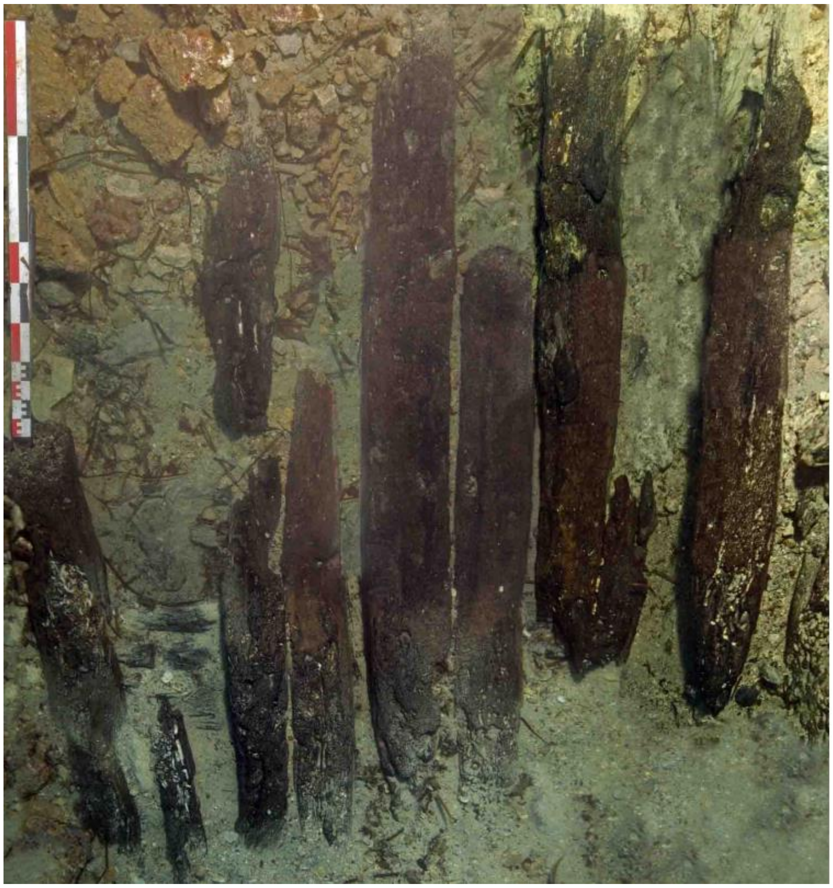

Clous
en fer
Bordé
Broche
métallique
M1
M2
M3
M4
M5
N
0
100

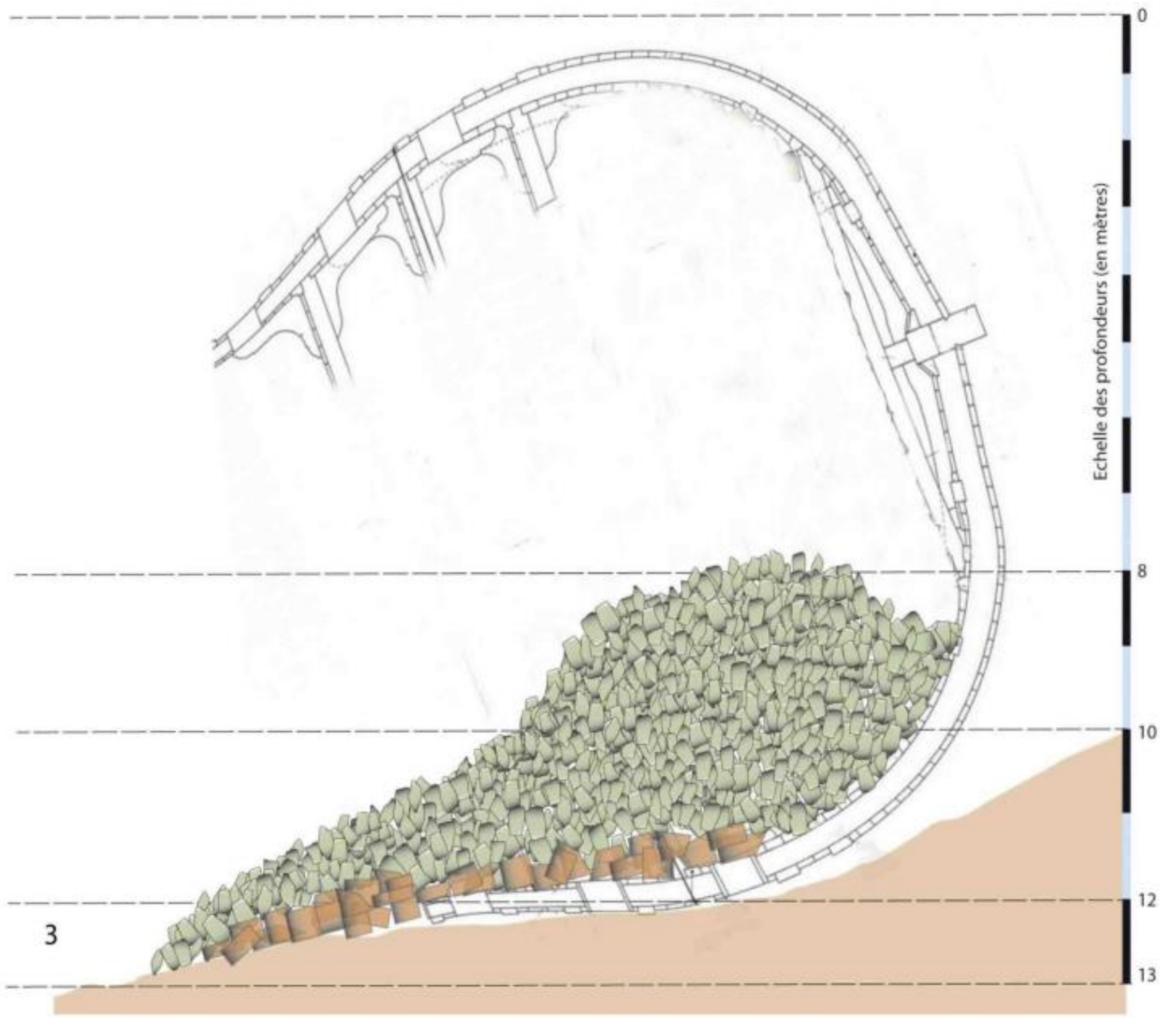
Fig.14 – ROCCIU I – Membrures M1 à M5 du sondage S-12

Sauf indication contraire, les chevilles sont en bois

Dessin A. C. de la Roche SEAS 2012

Fundamentals
Chronology: 1555
Place built – France?
Place lost – Ile-Rousse
Preserved – 30 x 20 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ?
Keel section (s/m) – ? x ? cm
Floors section (s/m) – 20 x 20 cm
R&S – 45 cm
Plank thickness – ? cm



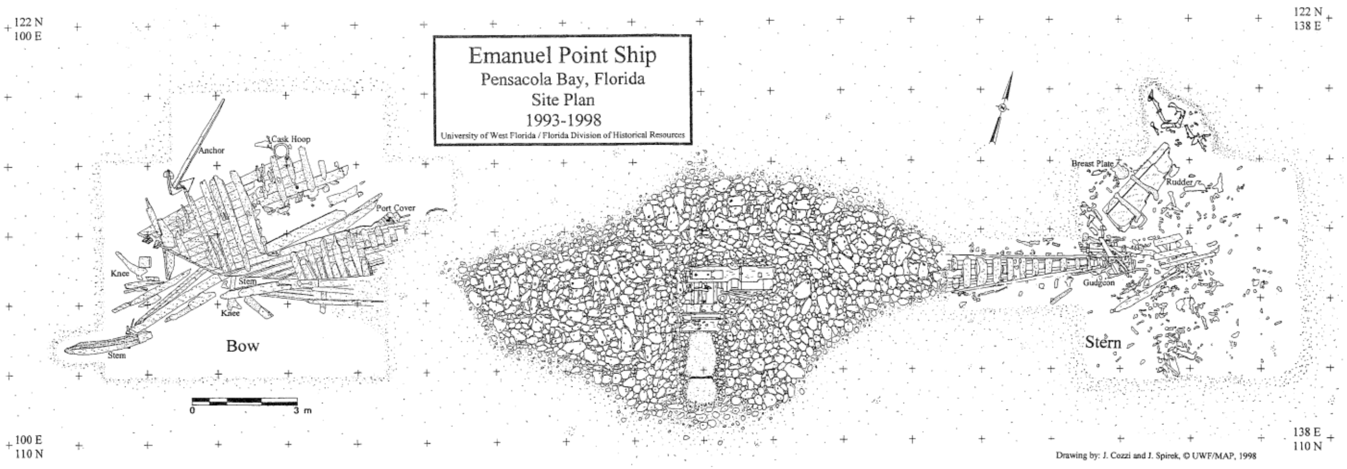

0
Echelle des profondeurs (en mètres)
8
10
12
13
3

Construction Traits
Maststep – Mediterranean ? Enlarged Keelson ?
Floor/futtock connection – ?
Planking fasteners – 25 mm treenails, few iron nails and bolts
Caulking – ?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

Emanuel Point 1


Emanuel Point Ship
Pensacola Bay, Florida
Site Plan
1993-1998
University of West Florida / Florida Division of Historical Resources
122 N
100 E
122 N
138 E
Anchor
Cask Hoop
Port Cover
Knee
Stem
Knee
Stem
Bow
0
3 m
Breast Plate
Rudder
Gudgeon
Stern
100 E
110 N
138 E
110 N
Drawing by: J. Cozzi and J. Spirek, © UWF/MAP, 1998

Fundamentals

Chronology: 1559

Place built – Spain ?

Place lost –

Preserved – 25 x 5 m

Length reconstructed – 34.8 m; Beam reconstructed – 8 m

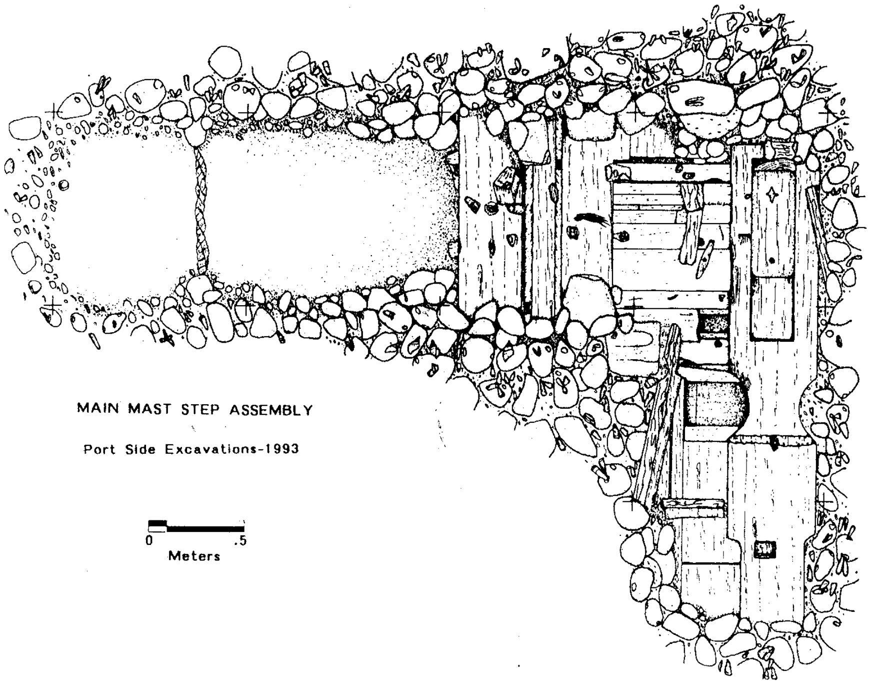
Keel length – 23.6 m

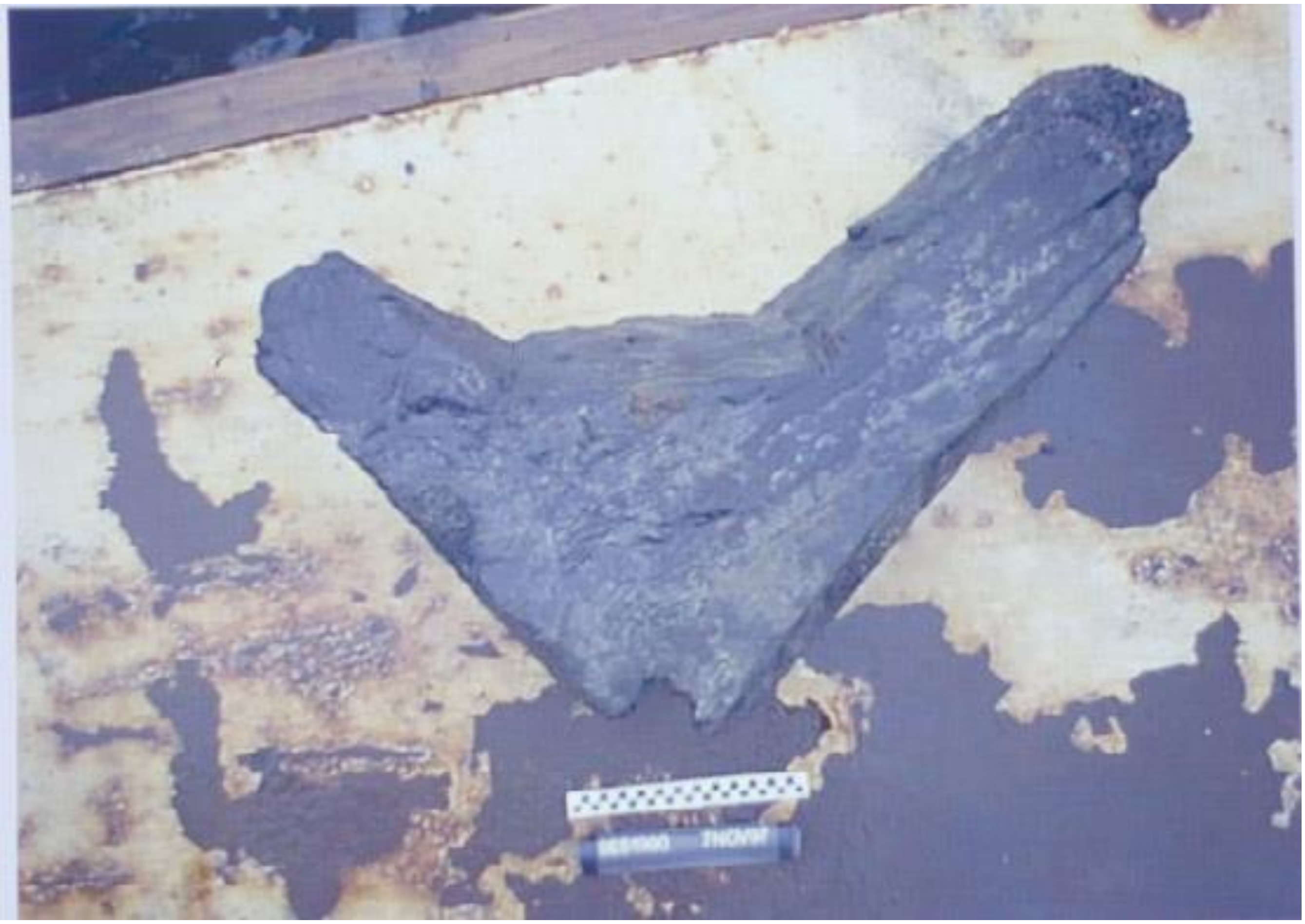
Keel section (s/m) – 31 x 29 cm

Floors section (s/m) – 20 x 25 cm

R&S – 45 cm

Plank thickness – 7 cm


MAIN MAST STEP ASSEMBLY
Port Side Excavations-1993
0
.5
Meters



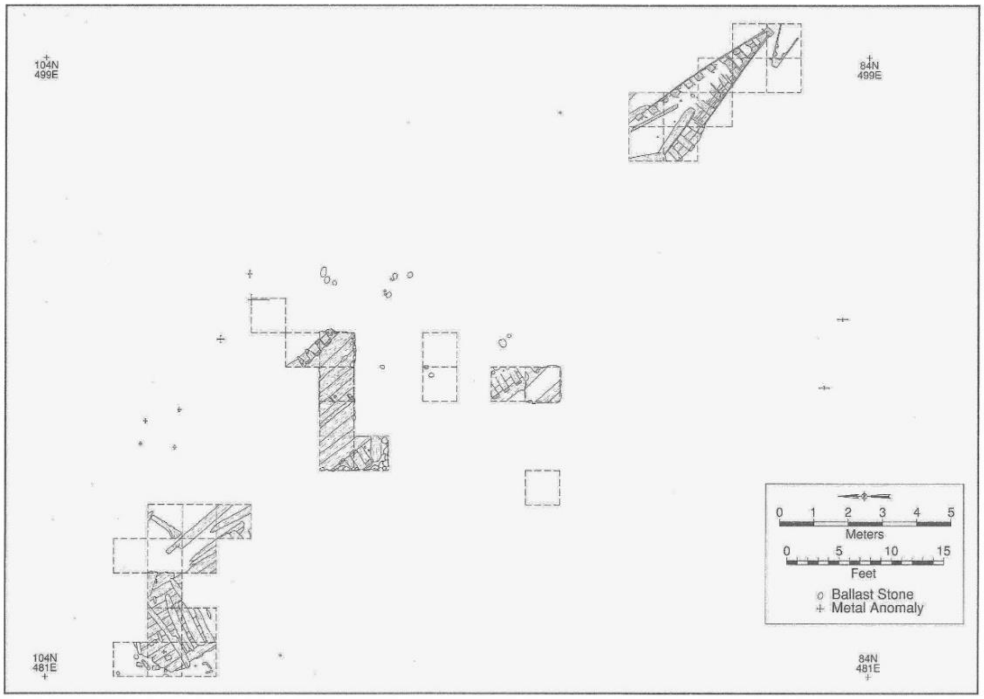
Construction Traits
Maststep – Expanded keelson
Floor/futtock connection – N/A
Planking fasteners – Nails square
Caulking – plant and animal between seams
Sheathing – lead sheets on sternpost, strips on seams
Keel/sternpost connection – N/A

Design Traits
Hull shape – flat + 1 arc?
Construction marks –
Evidence for rising and narrowing -

Notes –

Ref:
Smith, R. C., Bratten, J. R., Cozzi, J. and Plaskett, K., 1995, The Emanuel Point Ship: Archaeological Investigations, 1992-1995, Preliminary Report. Tallahassee.

Emanuel Point 2


104N
499E
84N
499E
104N
481E
84N
481E
0
1
2
3
4
5
Meters
0
5
10
15
Feet
Ballast Stone
Metal Anomaly

Fundamentals
Chronology: 1559
Place built – Spain ?
Place lost –
Preserved – 28 x 6 m
Length reconstructed – N/A; Beam reconstructed – N/A
Keel length – 22.52 m
Keel section (s/m) – 32 x 27 cm
Floors section (s/m) – 23 x 25 cm
R&S – 41 cm
Plank thickness – 5-6 cm

Construction Traits
Maststep – Expanded keelson
Floor/futtock connection – N/A
Planking fasteners – Nails square
Caulking – Oakum between planks
Sheathing – Lead strips, patches over sternpost, patches over treenails
Keel/sternpost connection – N/A

Design Traits
Hull shape – N/A
Construction marks –
Evidence for rising and narrowing -

Notes –

Ref:
Cook, G., 2009, Luna's Ships: Current Excavation on Emanuel Point II and Preliminary Comparisons with the First Emanuel Point Shipwreck. *The Florida Anthropologist* **62**.3-4, 93-99.

Emanuel Point 3

Fundamentals
Chronology: 1559
Place built – Spain ?
Place lost –
Preserved – ? x ? m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) – ? x ? cm
Floors section (s/m) – ? x ? cm
R&S – ? cm
Plank thickness – 5-6 cm

Construction Traits

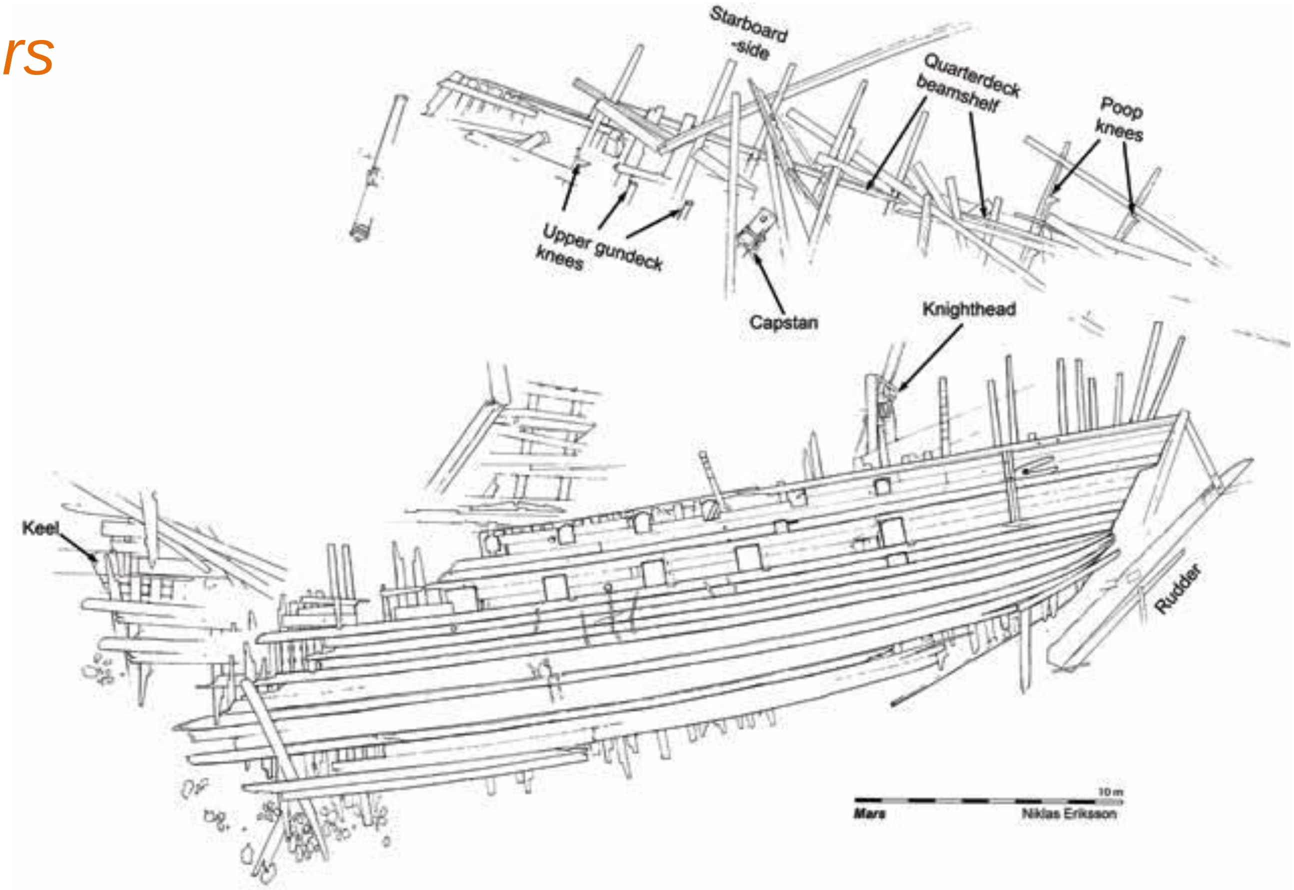
Maststep – ?
Floor/futtock connection – ?
Planking fasteners – No treenails present on the known hull
Caulking – ?
Sheathing – Lead strips
Keel/sternpost connection – ?

Design Traits

Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

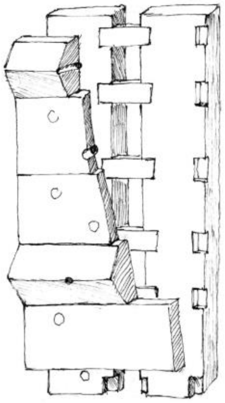
Notes – Found in 2016, the ship has only had a single 2 x 2 m unit open with limited recording.

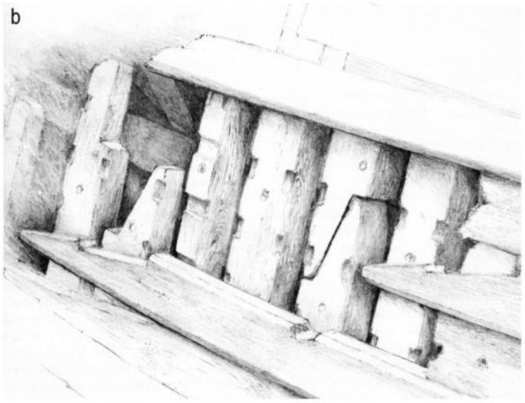
Mars

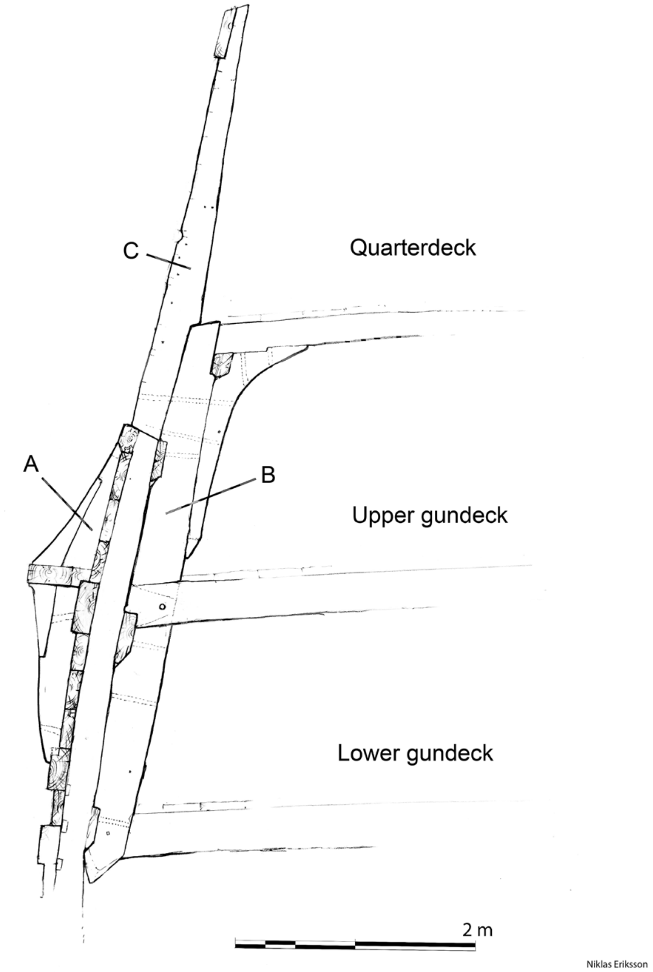

Starboard -side
Quarterdeck beamshelf
Poop knees
Upper gundeck knees
Capstan
Knighthead
Keel
Rudder
10 m
Mars
Niklas Eriksson

Fundamentals
Chronology: 1563-1564
Place built – Sweden
Place lost – Sweden
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – m
Keel section (s/m) – cm
Floors section (s/m) – cm
R&S – cm
Plank thickness – cm

a






C
Quarterdeck
A
B
Upper gundeck
Lower gundeck
2 m
Niklas Eriksson

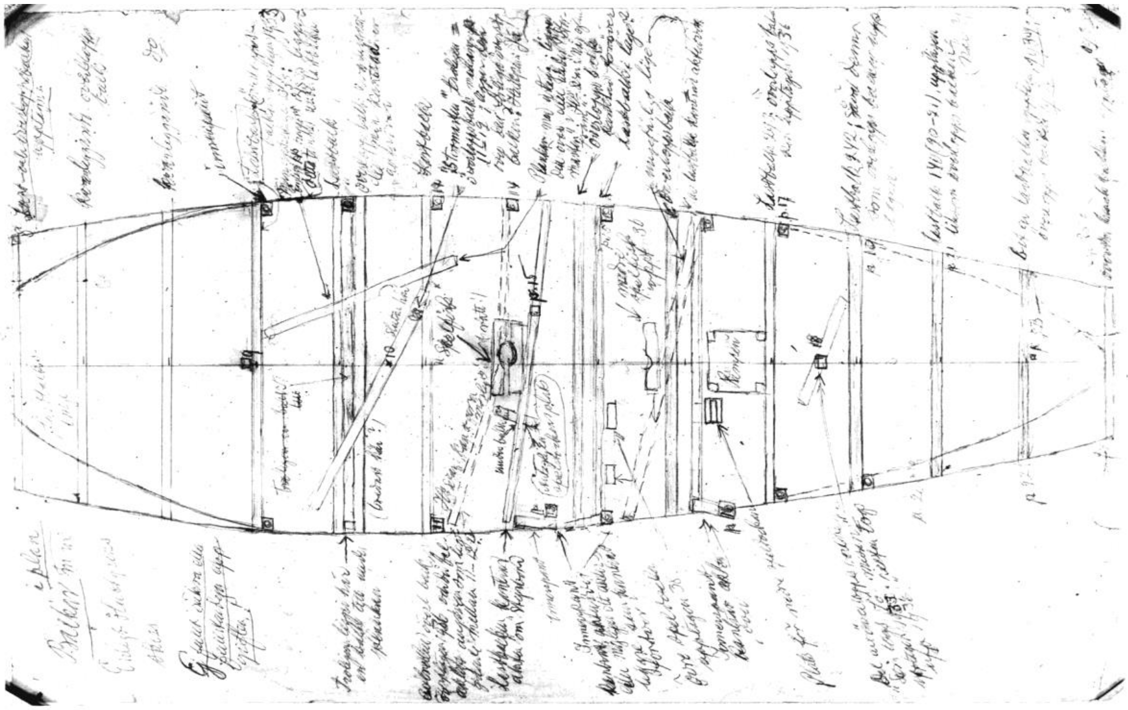
Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners – Carvel built, treenails
Caulking –
Sheathing –
Keel/sternpost connection –

Design Traits
Hull shape –
Construction marks –
Evidence for rising and narrowing –

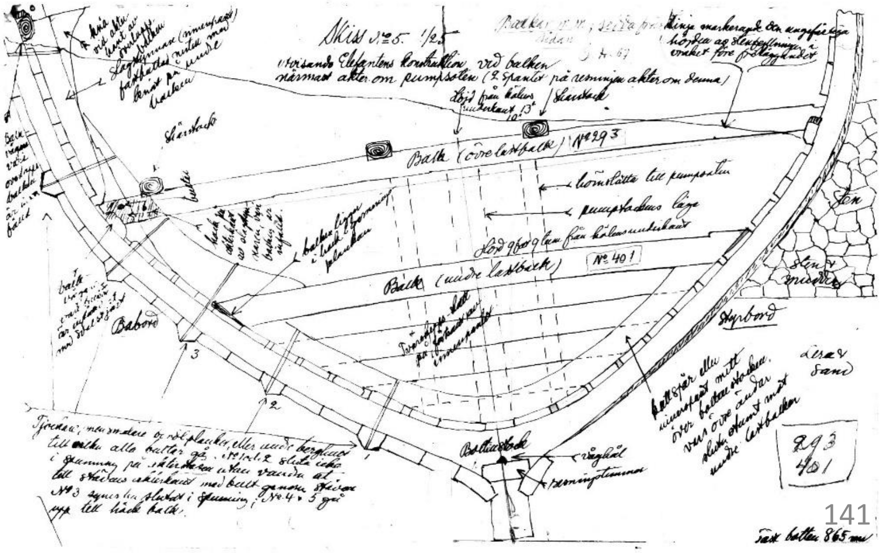
Notes –

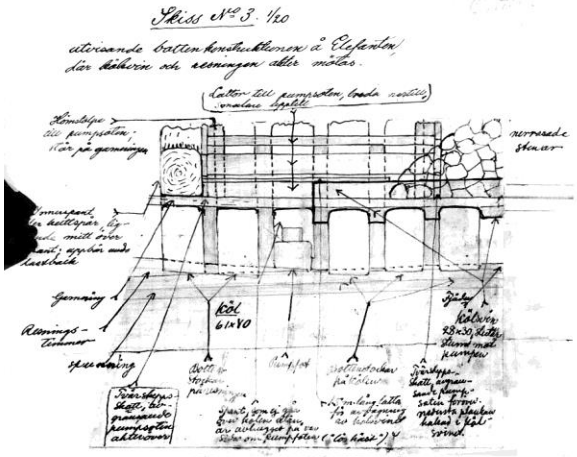
Ref:
Eriksson, N., 2016. “The architecture of a great 16th century warship: results from the initial surveys of Mars (1564)” in *IKUWA V*…
Eriksson, N., and Ronnby, J., 2017. “Mars (1564): the initial archaeological investigations of a great 16th-century Swedish warship” in *IJNA* 46.1: 92-107.

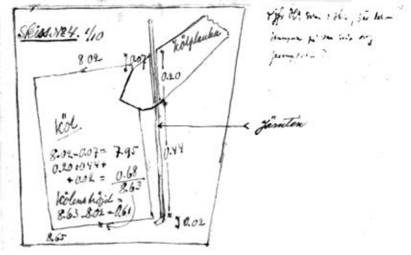
Elefanten

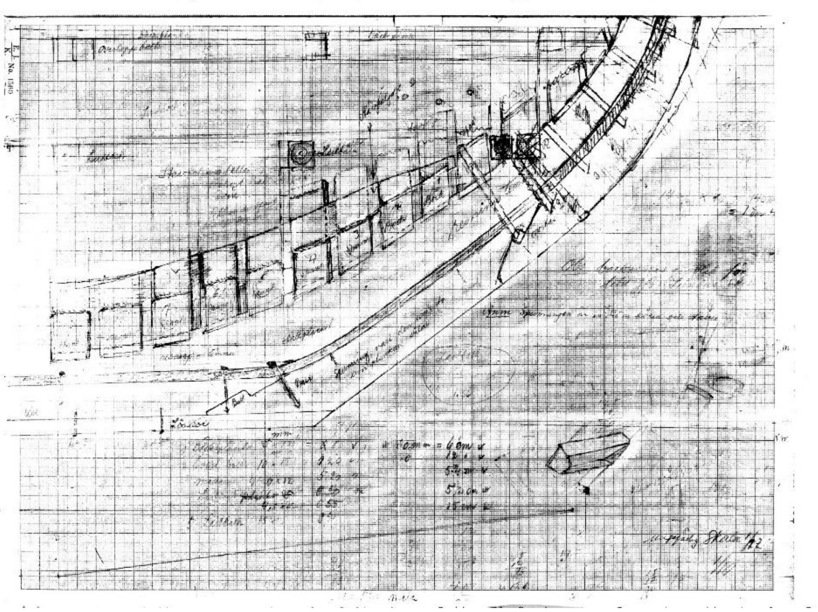


Fundamentals
Chronology: 1558-1564
Place built – Stockholm, Sweden
Place lost – Kalmarsund, Sweden
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – m
Keel section (s/m) – cm
Floors section (s/m) – cm
R&S – cm
Plank thickness – cm


Skiss N:o 5. 1/25
Visande Elefantens konstruktion vid balken närmast akter om pumpsoten (9 spanter på remmingen akter om denna)
Linje markerande den ungefärliga höjden av stenfyllningen i vraket före frilägg.
Höjd från kölens underkant 13' 10"
Skarstock
Balk (övre lastbalk) N:o 293
Balk (undre lastbalk) N:o 401
Höjd 9 fot 9 tum från kölens underkant
Kombsätta till pumpsoten
pumpstockens läge
Sten
Sten & murbruk
Styrbord
Babord
Lera & sand
Bottenstock
Väghål
Remmingstimmer
3
2
1
293
401
Fast botten 865 mu


Skiss No 3. 1/20
utvisande bottenkonstruktionen å Elefanten, där kölsvin och resningen akter mötas.
Latton till pumpsoten, breda nästill, snedare öppstill
Hömstolpe till pumpsoten; står på gemningen
nerrasade stenar
Ommerspant ... kettspår, liggande mitt över spant; upphör under lastbalk
Gemning
Resnings-timmer
spundning
Köl 61×40
Botten-stockar på resningen
Pumpfot
Bottenstockar på kölen
Tjälup
Kölsvin 28×30, slutar stumt mot pumpen
Tvärskepps-skott, avgränsande pumpsoten akterover
Spant, som ej går över kölen utan är avkapat på var sida om pumpfoten ("lös häst")
4.5 m lång latta för avtagning av kölsvinet
Tvärskepps-skott avgränsande pumpsaten förover; nedersta plankan hakad i kölsvinet


Skiss No 4. 1/10
8.02
0.07
Kölplanka
0.20
Köl
Järnten
0.44
8.02-0.07= 7.95
0.20+0.44+
+0.02 = 0.68
8.63
Kölens höjd =
8.63-8.02=0.61
0.02
8.65

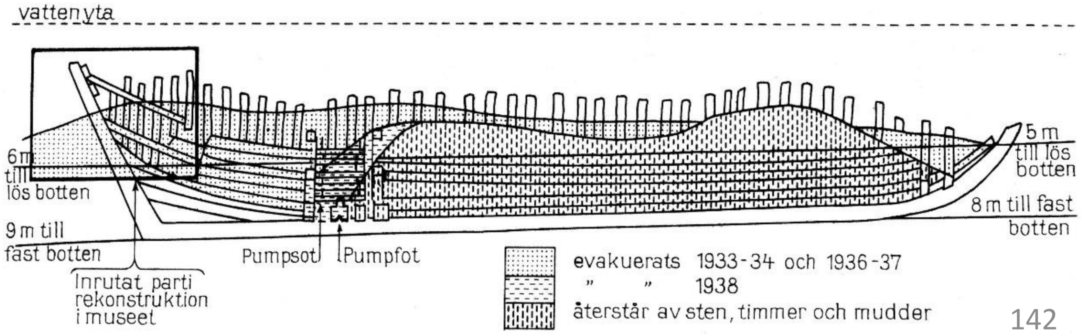


Construction Traits
Maststep –
Floor/futtock connection –
Planking fasteners – Carvel built
Caulking –
Sheathing –
Keel/sternpost connection –

Design Traits
Hull shape –
Construction marks –
Evidence for rising and narrowing –

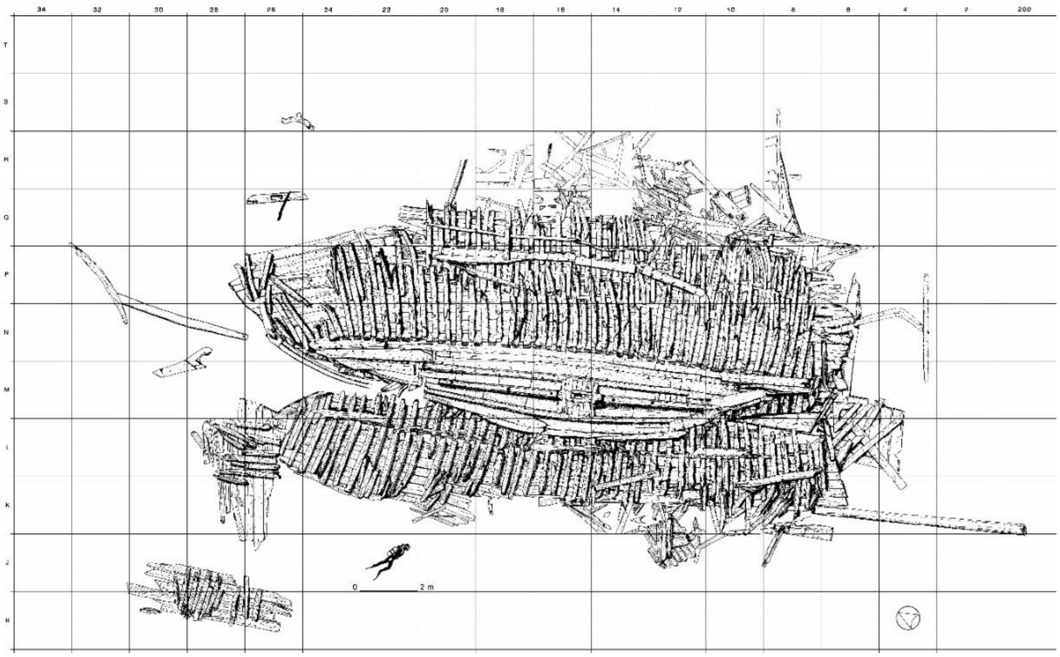
Notes –

Ref:

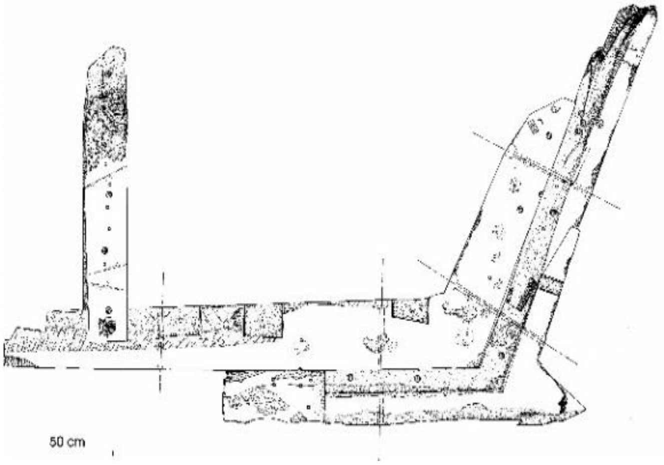

vattenyta
6 m till lös botten
9 m till fast botten
5 m till lös botten
8 m till fast botten
Pumpsot
Pumpfot
Inrutat parti rekonstruktion i museet
evakuerats 1933-34 och 1936-37
" " 1938
återstår av sten, timmer och mudder

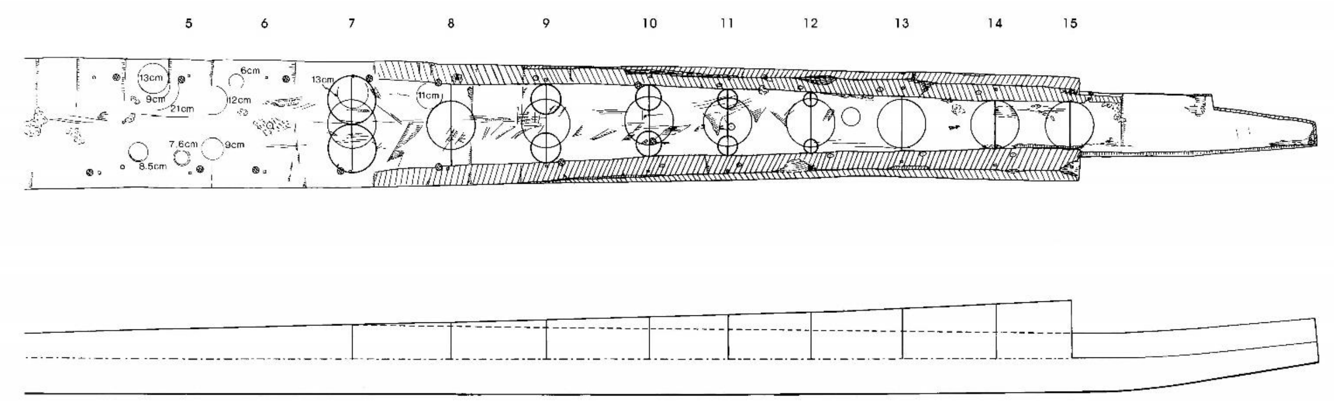
San Juan

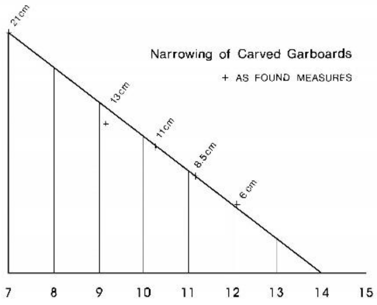
24M Wreck

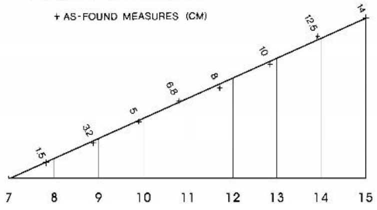

34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
200
T
S
R
Q
P
N
M
L
K
J
H
0
2 m

Fundamentals
Chronology: 1565
Place built – Spain ?
Place lost – Canada
Preserved – 25 x 12 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – 14.73 m
Keel section (s/m) – 22 x 27 cm
Floors section (s/m) – 20 x 20 cm
R&S – 38.5 cm
Plank thickness – 6 cm









Construction Traits
Maststep – Expanded keelson
Floor/futtock connection – dovetail
Planking fasteners – Nails square
Caulking – Oakum (hemp or flax), human, and animal hair
Sheathing – None
Keel/sternpost connection – Horizontal scarf

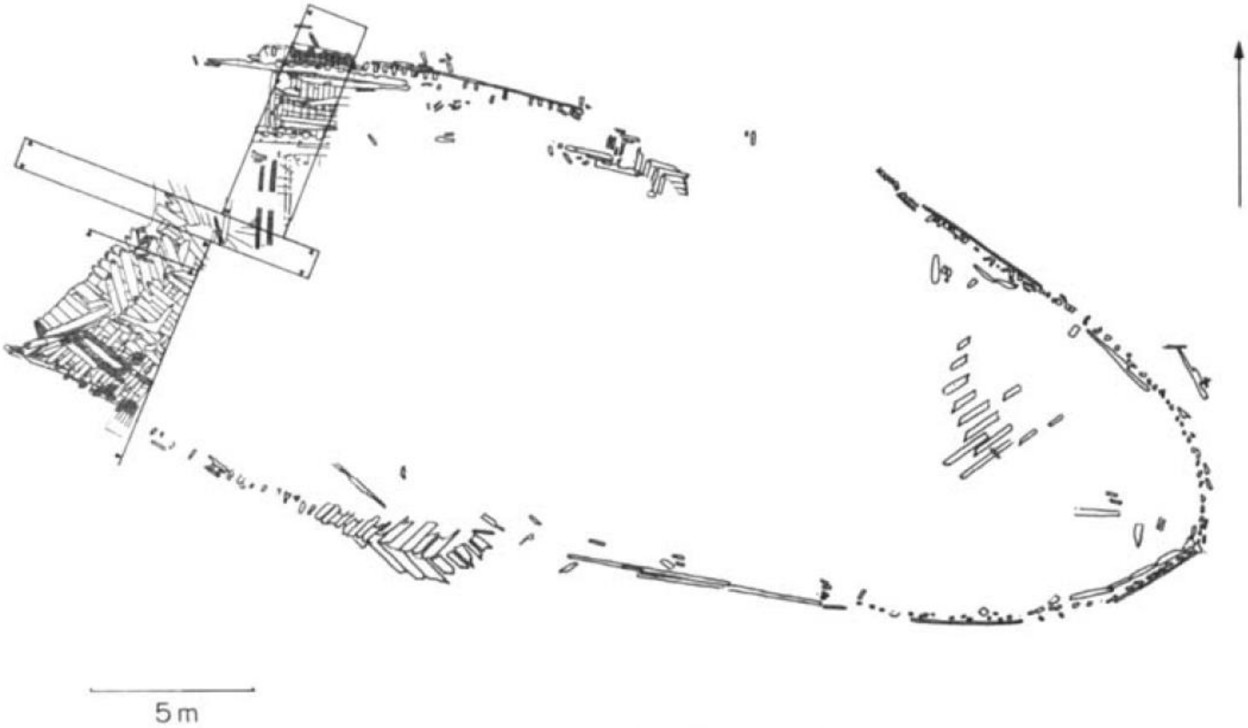
Design Traits
Hull shape – flat + 4 arcs
Construction marks – Geometric circles on keel and marks on the floor timbers
Evidence for rising and narrowing – Floor timbers show rising and narrowing

Notes –

Ref:
Grenier, R., Bernier, M.-A. and Stevens, W. (eds.), 2007, *The Underwater Archaeology of Red Bay: Basque Shipbuilding and Whaling in the 16th Century,* Ottawa. Parks Canada.

Yarmouth Roads

Santa Lucia?



Fundamentals
Chronology: 1567
Place built – Spain ?.
Place lost – Yarmouth (Isle of Wight, England).
Preserved – 40 x 16 m?.
Length reconstructed – 32 m; Beam reconstructed – 12 m.
Keel length – 32 m?.
Keel section (s/m) – x cm?.
Floors section (s/m) – x cm?.
R&S – N/A.
Plank thickness – N/A.

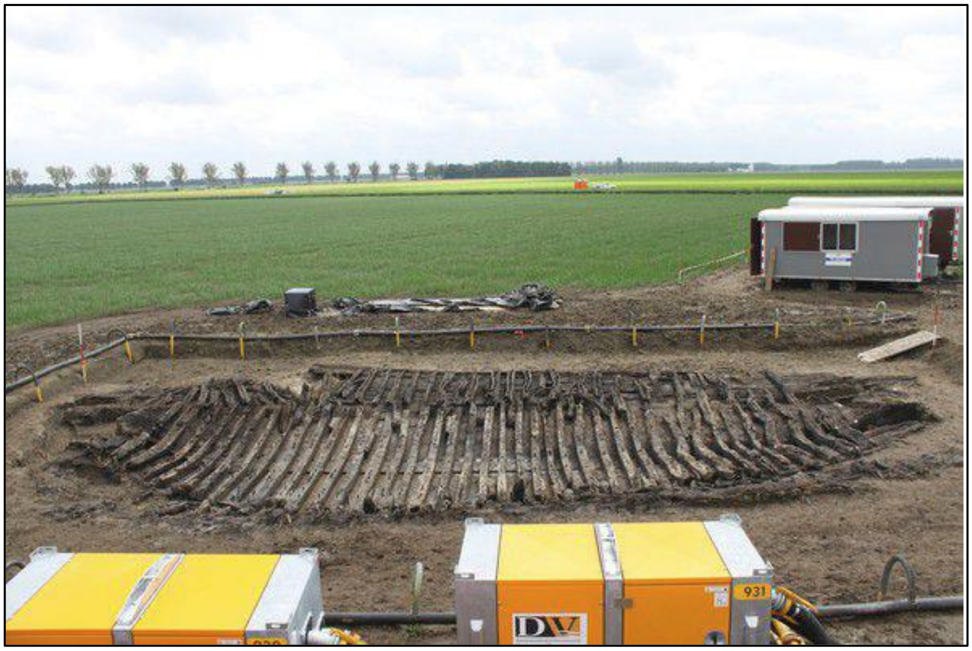
Construction Traits
Maststep – N/A.
Floor/futtock connection – Iron nails.
Planking fasteners – Iron nails.
Caulking – N/A.
Sheathing – N/A.
Keel/sternpost connection – N/A.

Design Traits
Hull shape – round.
Construction marks –
Evidence for rising and narrowing –

Notes –

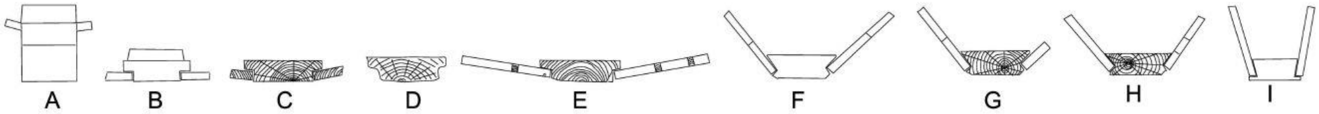
Ref:
Watson, K. and Gale, A., 1990, Site evaluation for marine sites and monuments records: the Yarmouth Roads Wreck investigations. *IJNA*, **19.3**, 183–92; Ruth, M.. Plets, K., Dix, J. K. and Best, A. I., 2007, Mapping of the Buried Yarmouth Roads Wreck, Isle of Wight, UK, using a Chirp Sub-Bottom Profiler. *IJNA*, **37**.2, 360-373.

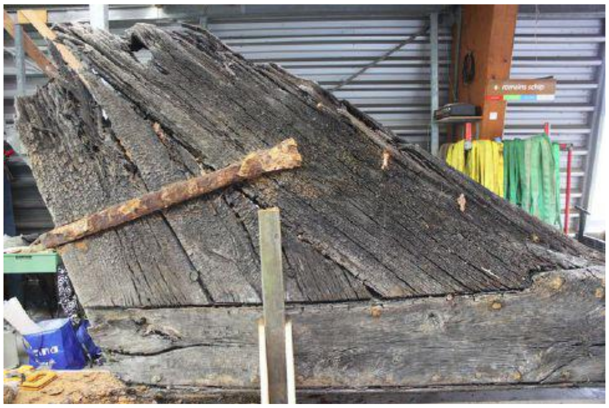
OE34

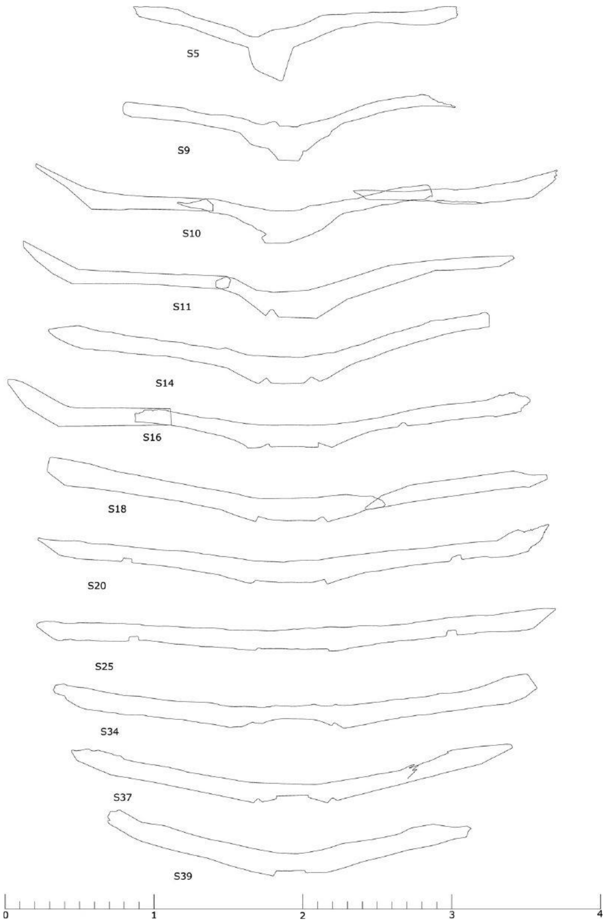


Fundamentals

Chronology: 1553-1572
Place built –
Place lost – Netherlands
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –






S5
S9
S10
S11
S14
S16
S18
S20
S25
S34
S37
S39
0
1
2
3
4

Construction Traits
Maststep – N/A.
Floor/futtock connection – .
Planking fasteners – .
Caulking – N/A.
Sheathing – N/A.
Keel/sternpost connection – N/A.

Design Traits
Hull shape – round.
Construction marks –
Evidence for rising and narrowing –

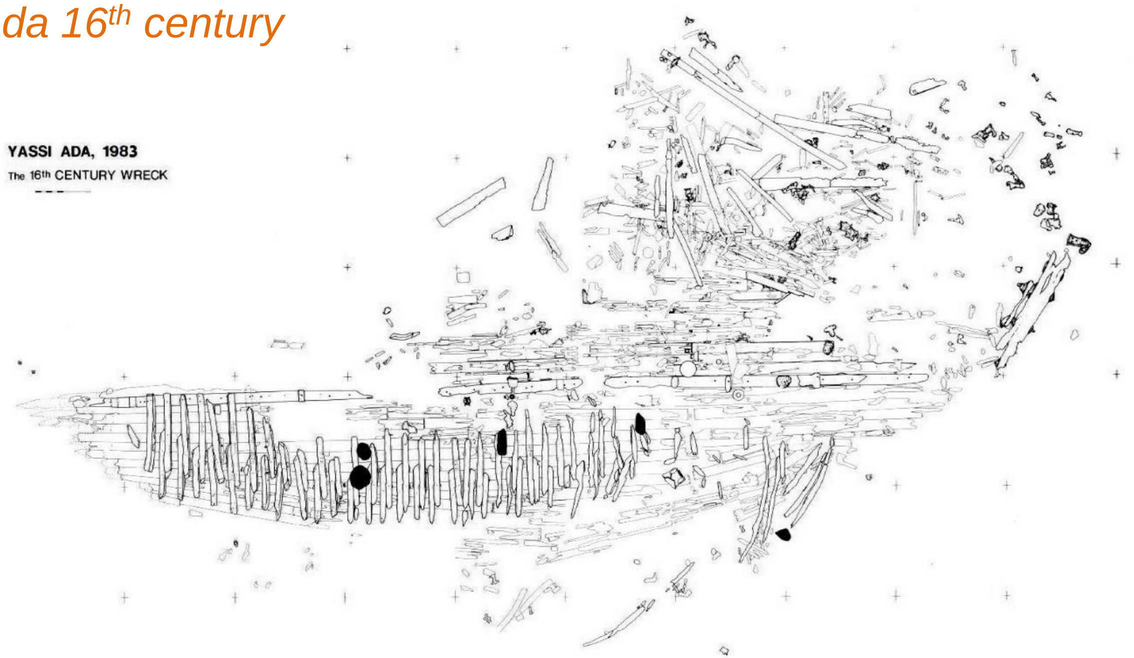
Notes –

Ref:

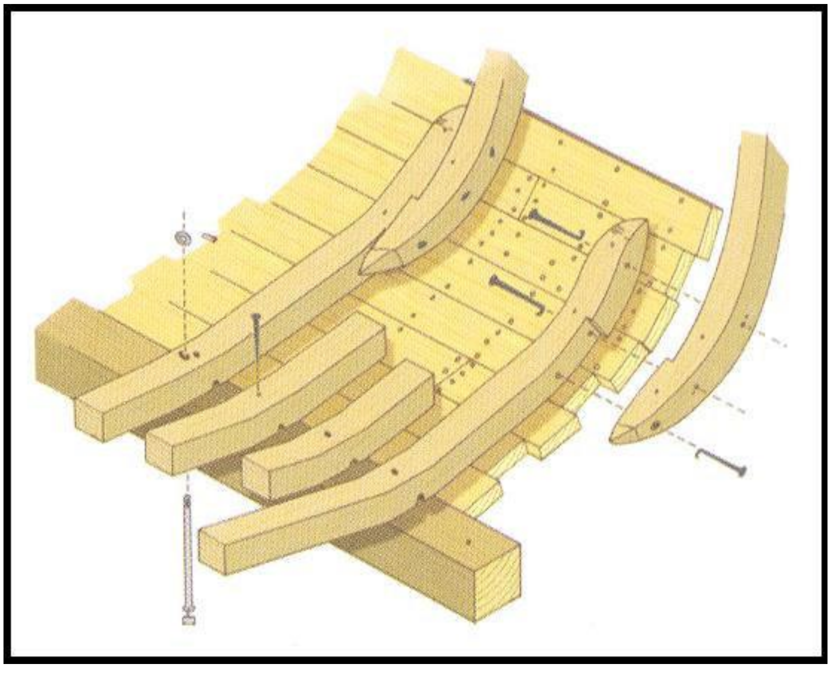
Logan, M., 2013. *A Study of a 16th-century wooden vessel from the Netherlands*. MA Thesis Maritime Archaeology Programme, Syddansk Universitet.

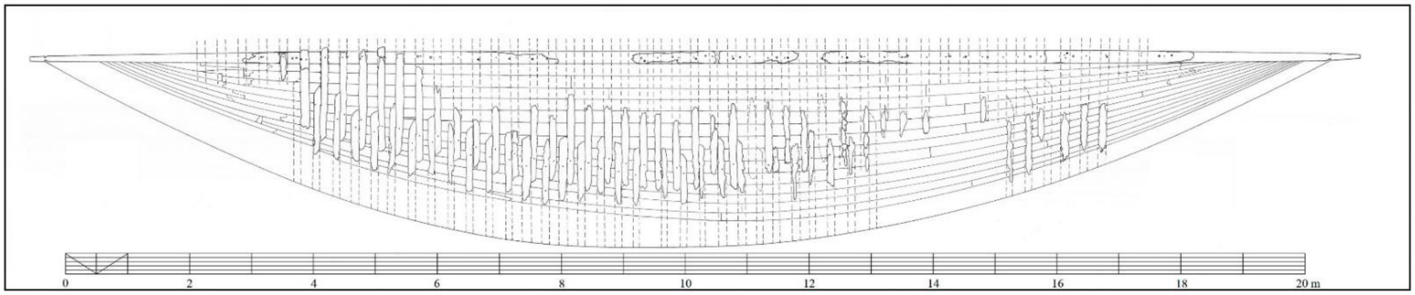
Yassiada 3

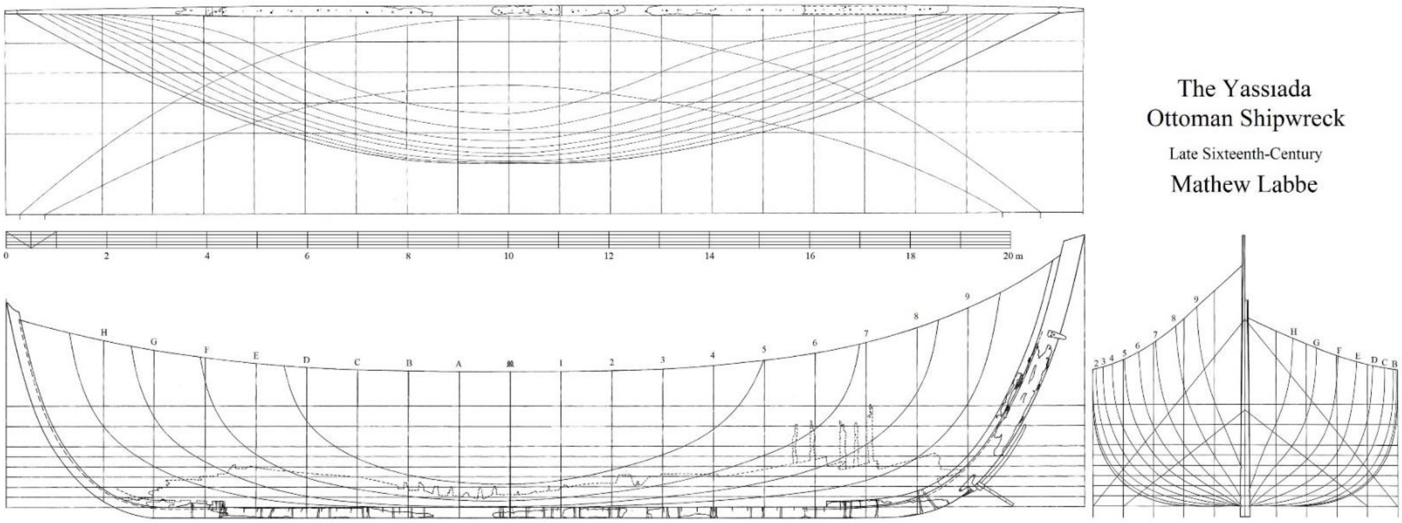
Yassiada 16th century


YASSI ADA, 1983
The 16th CENTURY WRECK

Fundamentals
Chronology: 1575-1600
Place built – Eastern Mediterranean
Place lost –
Preserved – 17 x 15 m
Length reconstructed – 21.2 m; Beam reconstructed – 6 m
Keel length – reconstructed 16.5 m
Keel section (s/m) – 20 x 20 cm
Floors section (s/m) – 13 x 13 cm
R&S – 26 cm
Plank thickness – 5-6 cm




0
2
4
6
8
10
12
14
16
18
20 m


The Yassıada
Ottoman Shipwreck
Late Sixteenth-Century
Mathew Labbe
0
2
4
6
8
10
12
14
16
18
20 m
H G F E D C B A 1 2 3 4 5 6 7 8 9
2 3 4 5 6 7 8 9
H G F E D C B

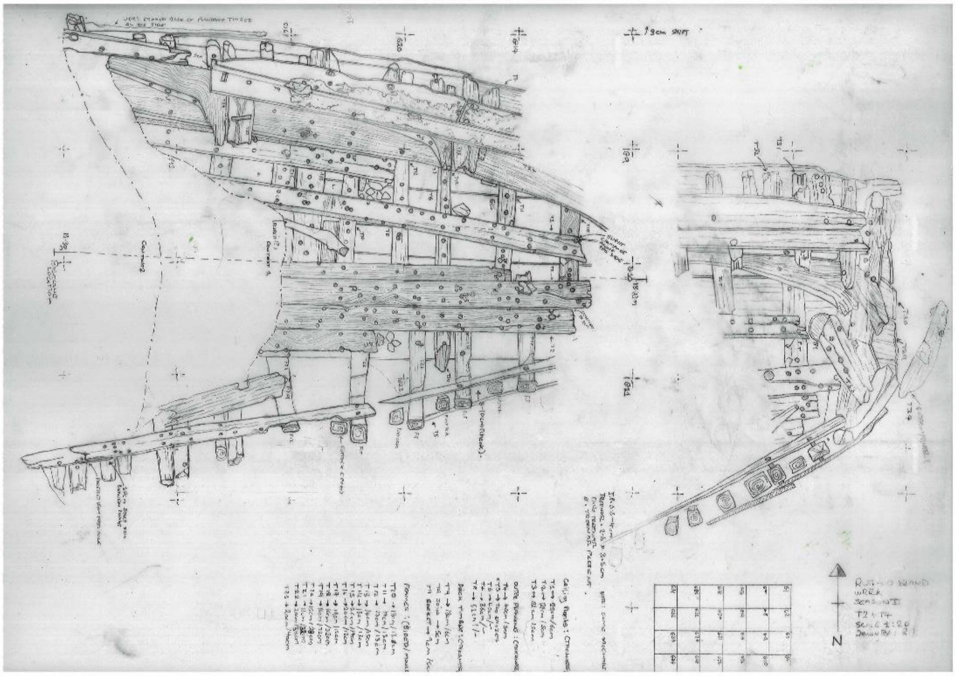
Construction Traits
Maststep – N/A
Floor/futtock connection – hook scarf
Planking fasteners – Nails square
Caulking – ?
Sheathing – None
Keel/sternpost connection – N/A

Design Traits
Hull shape – flat + 1 arc
Construction marks –
Evidence for rising and narrowing -

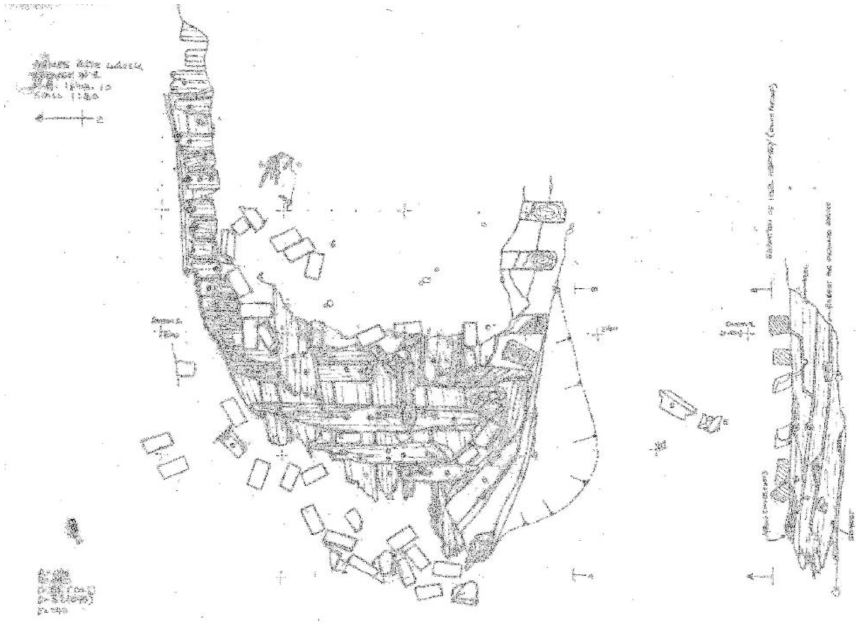
Notes –

Ref:
Labbe, M., 2010, A Preliminary Reconstruction of the Yassiada Sixteenth-Century Ottoman Wreck. Master of Arts Thesis, Texas A&M University.

Rutland


Rutland Island Wreck
T2 + T4
N

Fundamentals
Chronology: 1575-1625
Place built –
Place lost – Ireland
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –



Construction Traits
Maststep – N/A.
Floor/futtock connection – .
Planking fasteners – .
Caulking – N/A.
Sheathing – N/A.
Keel/sternpost connection – N/A.

Design Traits
Hull shape – round.
Construction marks –
Evidence for rising and narrowing –

Notes –

Ref:

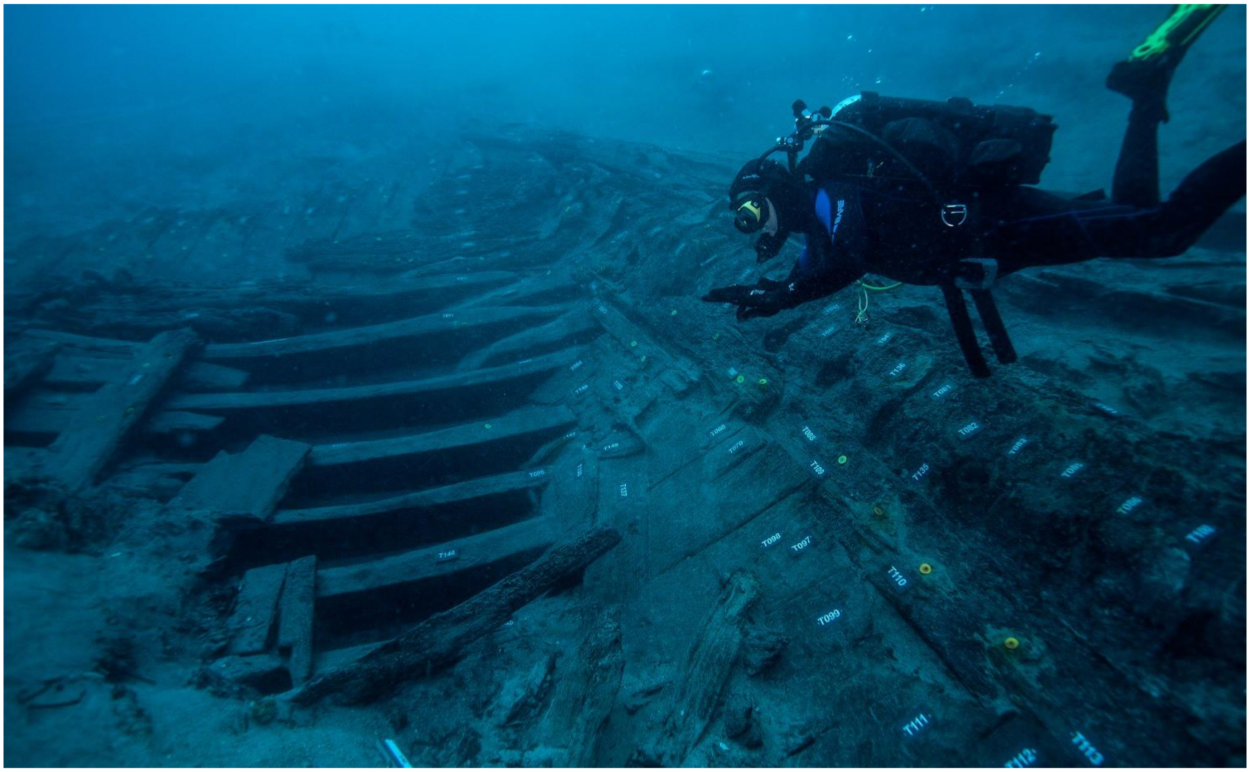
Kelleher, C., 2011. *Rutland Wreck Project 2011. Interim Report on results of UAU excavation of a posible Spanish Armada Wreck.* Underwater Archaeological Unit. Ireland.

Sudorad, Sipan (Croatia)

San Hieronimo

Fundamentals

Chronology: 1576
Place built – England?
Place lost – Suđurađ (Šipan, Croatia).
Preserved – ? x ? m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – N/A.
Keel section (s/m) – N/A.
Floors section (s/m) – N/A.
R&S – N/A.
Plank thickness – 6.5 cm.



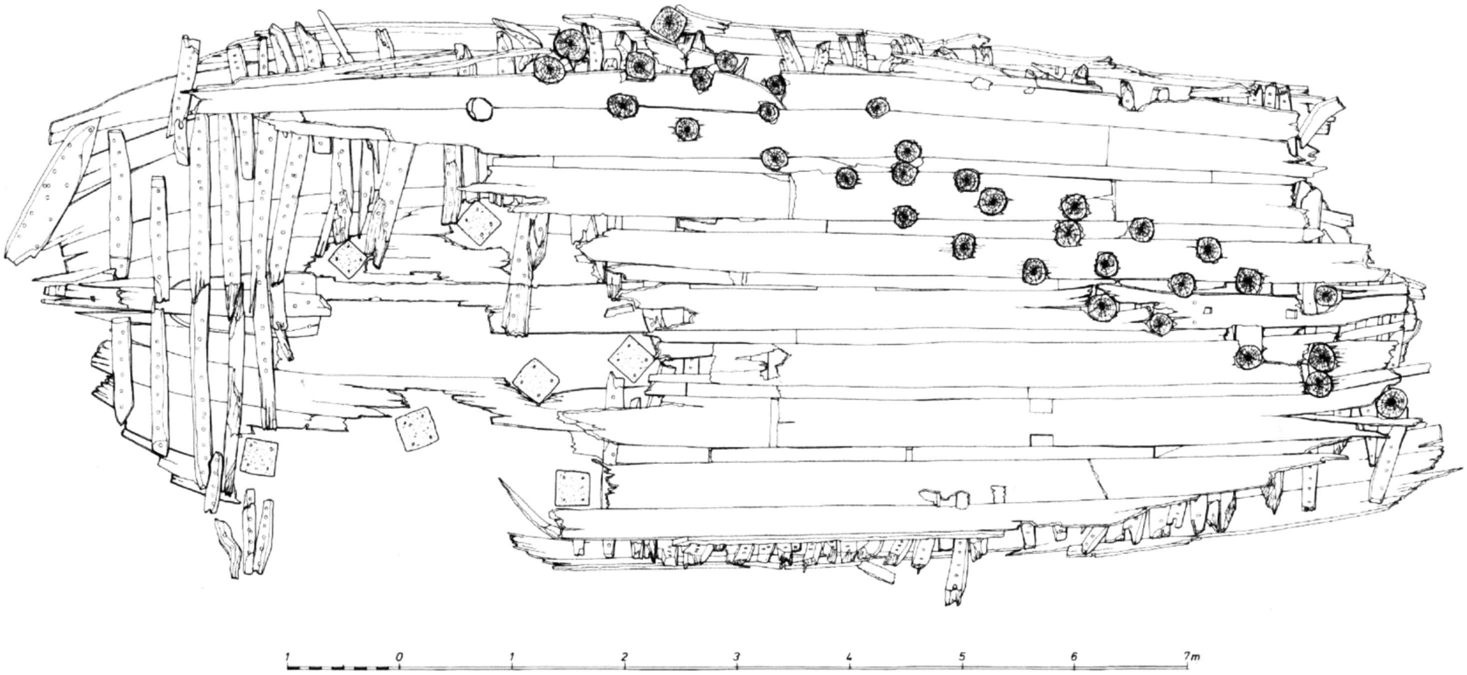
Construction Traits
Maststep – Mediterranean ? Enlarged Keelson ?
Floor/futtock connection – Scarfs?
Planking fasteners – N/A.
Caulking – N/A.
Sheathing – Lead, full.
Keel/sternpost connection – N/A.

Design Traits
Hull shape – Undetermined.
Construction marks –
Evidence for rising and narrowing –

Notes –

Refs.:
Casaban, J. & Radic Rossi, I., 2017, The Santo Hieronimo Shipwreck (1576): Preliminary Report on the Hull Design of a 16th-Century Ragusan Nava.

B&W 4



Fundamentals

Chronology: Build 1582-1583 Lost: 1610

Place built: Denmark

Place lost –

Preserved: 12.5 x 5 m

Length reconstructed –15 m; Beam reconstructed – 5 m

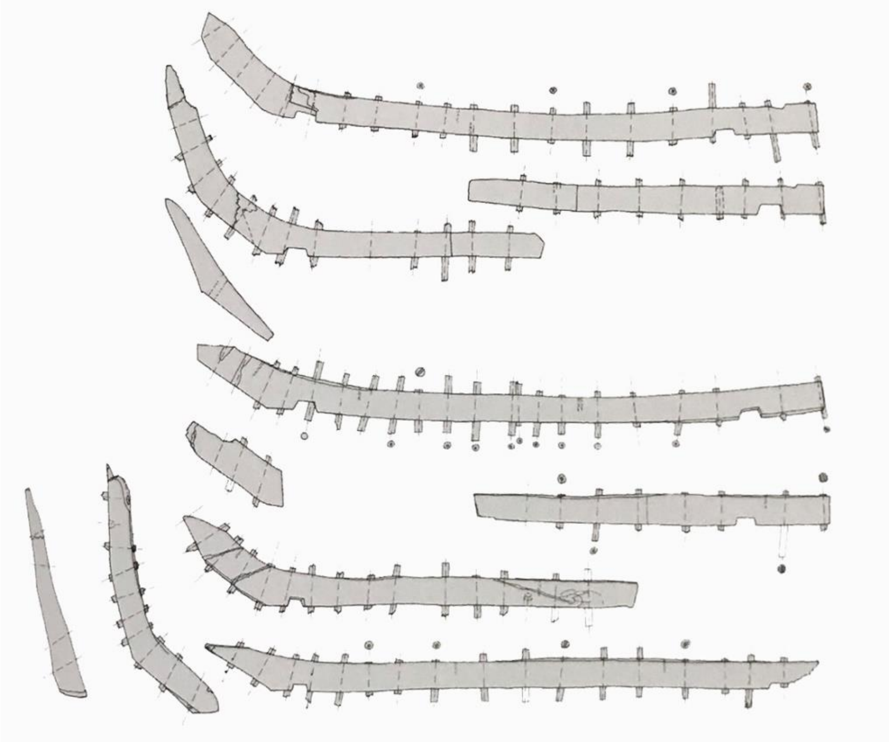
Keel length – +11.7 m

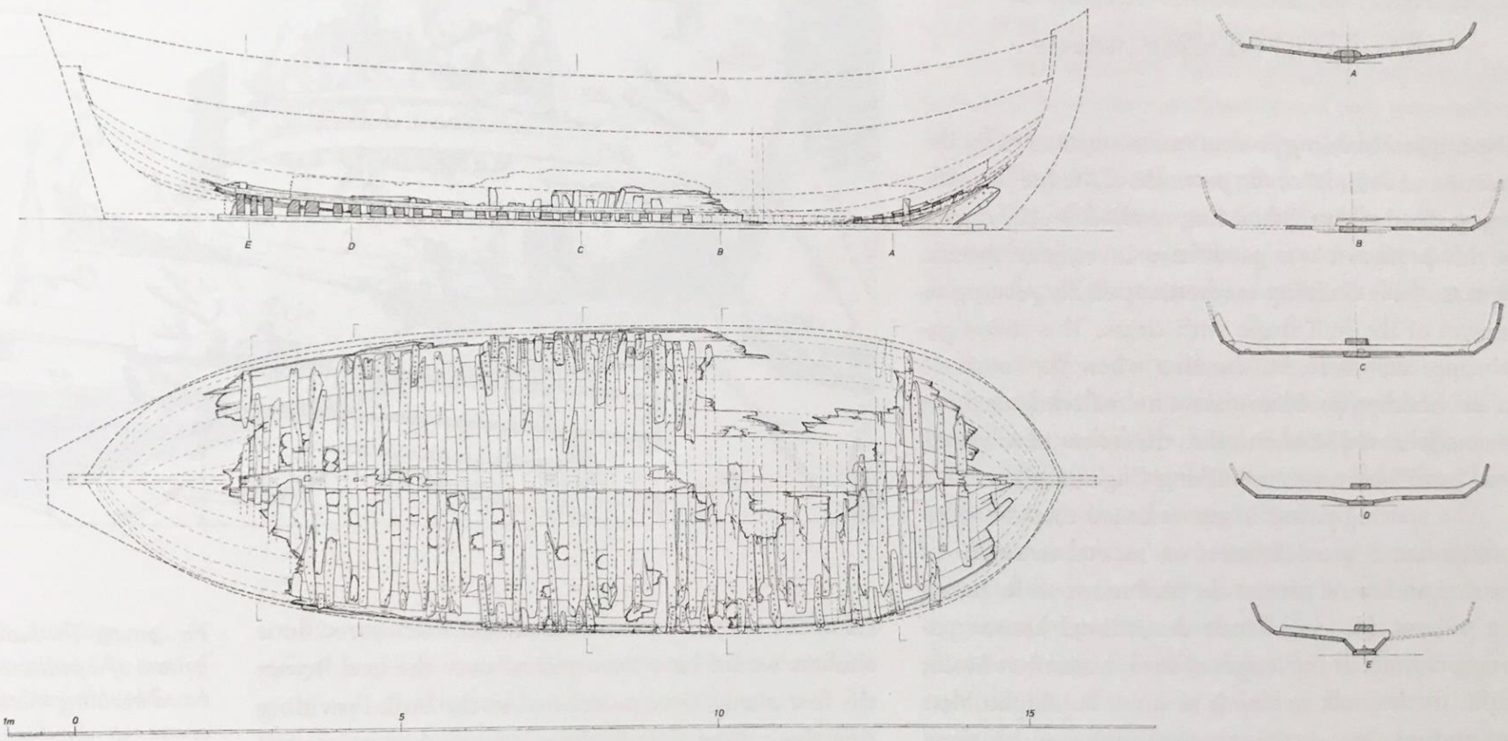
Keel section (s/m) – 44 x 10 cm

Floors section (s/m) –18 x 12 cm

R&S – 36 cm

Plank thickness – 5 cm





Construction Traits
Maststep – N/A
Floor/futtock connection – diagonal overlap
Planking fasteners – treenails only
Caulking – moss
Sheathing – N/A
Keel/sternpost connection: Not preserved

Design Traits
Hull shape – flat + 1 arc
Construction marks –
Evidence for rising and narrowing -

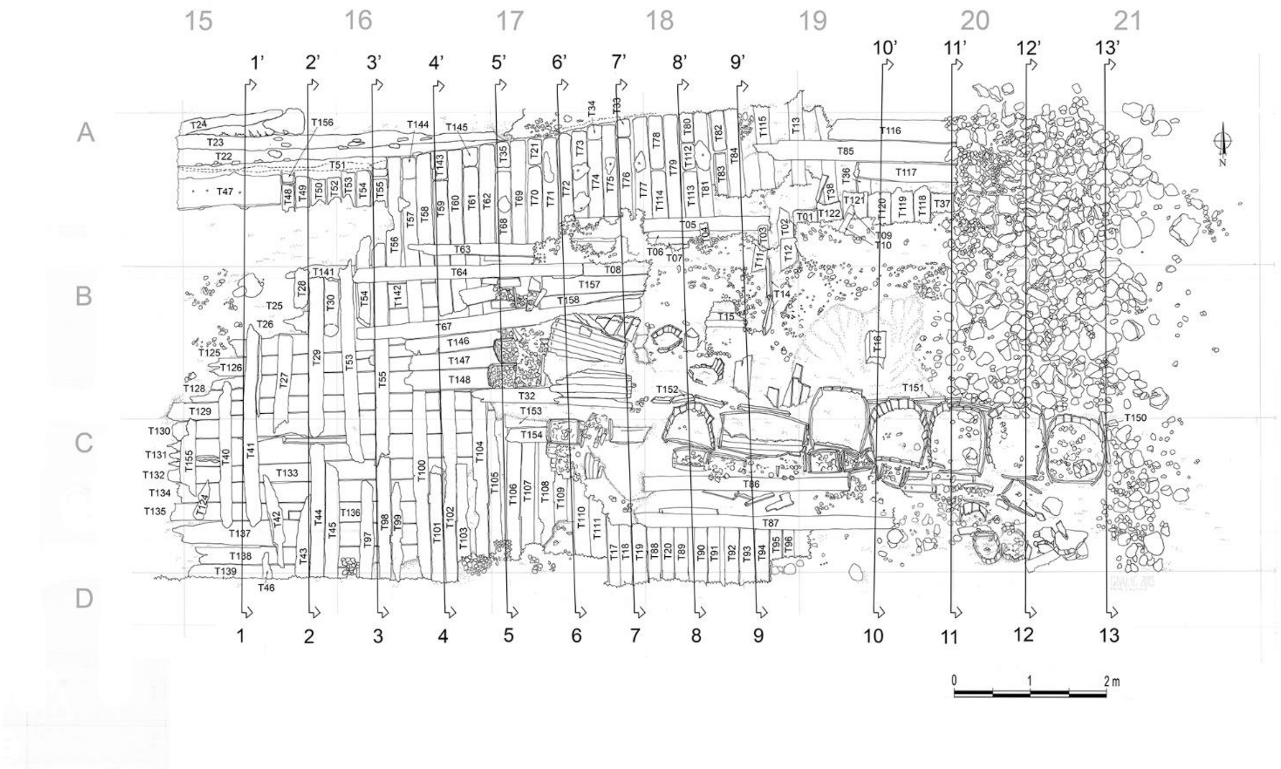
Notes – oak

Refs:

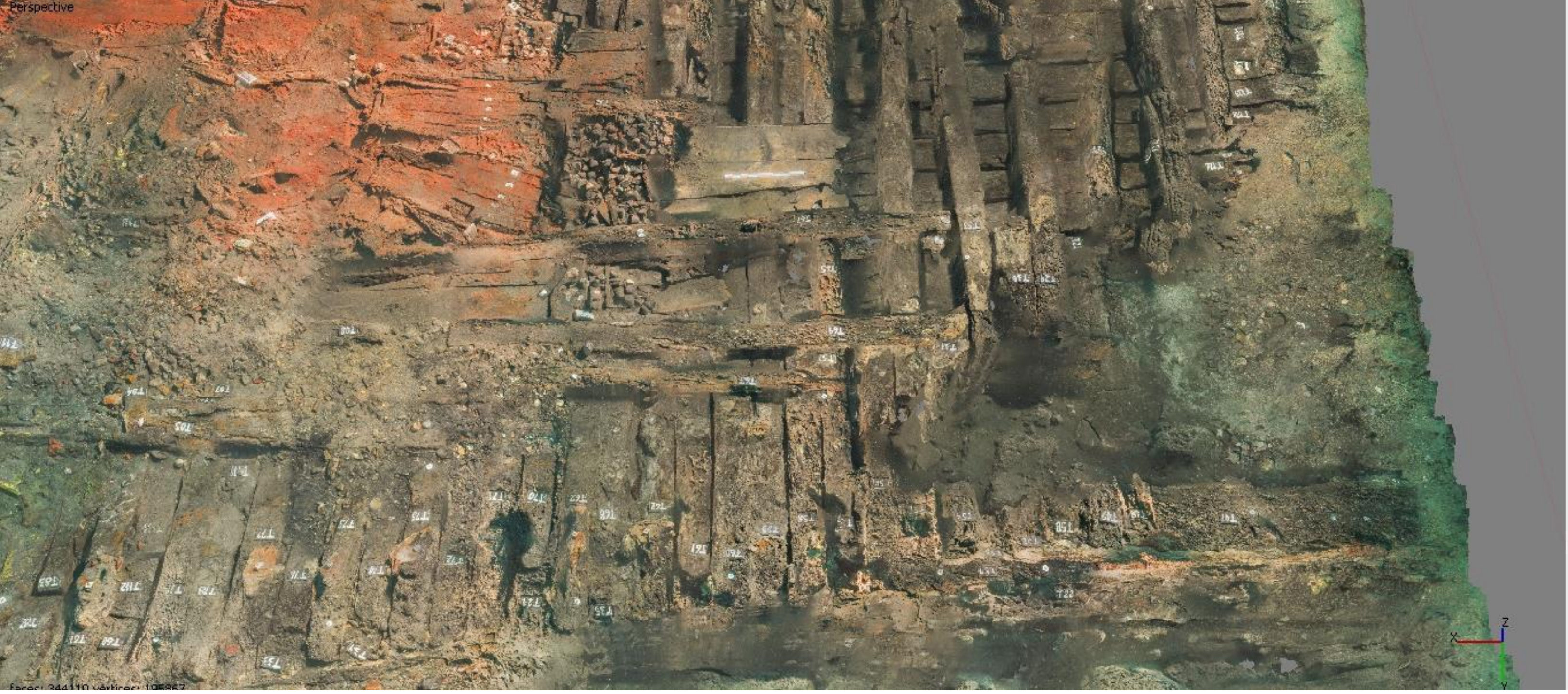
Lemée, C., 2006. *The Renaissance Shipwrecks from Chrstianshavn*. Ships and Boats of the North, Volume 6. Roskilde: The Viking Ship Museum.

Gnalic

Gagliana grossa


15
16
17
18
19
20
21
A
B
C
D
1'
2'
3'
4'
5'
6'
7'
8'
9'
10'
11'
12'
13'
1
2
3
4
5
6
7
8
9
10
11
12
13
N
0
1
2 m

Fundamentals
Chronology: 1579-1583
Place built – Venice, Italy
Place lost –
Preserved – 24 x 8 m
Length reconstructed – 40 m; Beam reconstructed – 14 m
Keel length – ? m
Keel section (s/m) – 25 x ? cm
Floors section (s/m) – 18 x 18 cm
R&S – 36 cm
Plank thickness – 10 cm



Koutaro Yamafune 2014

Construction Traits

Maststep – Mediterranean

Floor/futtock connection – some hook scarves, pattern unknown

Planking fasteners – Nails round or round/square

Caulking – ?

Sheathing – ?

Keel/sternpost connection - ?

Design Traits

Hull shape – ?

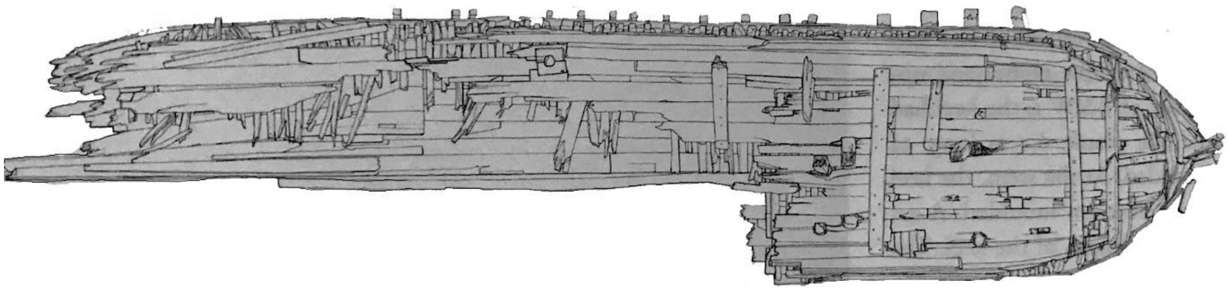
Construction marks –

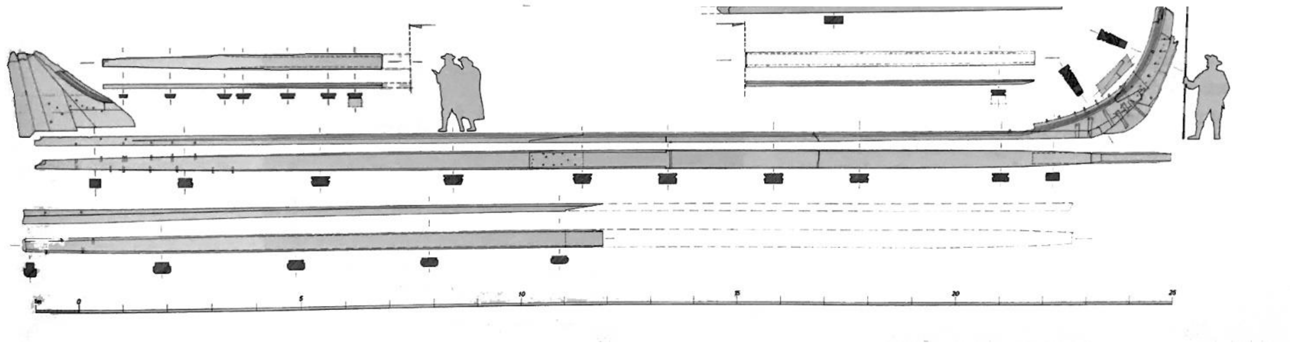
Evidence for rising and narrowing -

Notes –

Refs.

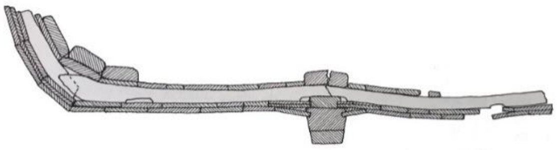
B&W 1





Fundamentals

Chronology: 1584-1624
Place built – Netherlands
Place lost –
Preserved – 26 x 6 m
Length reconstructed – ? m; Beam reconstructed – 6 m
Keel length – Lengthened to 26.8 m (+ 6.5 m)
Keel section (s/m) – 32 x10.5 cm
Floors section (s/m) – 21 x 15 cm
R&S – 42 cm
Plank thickness – 4.5 cm



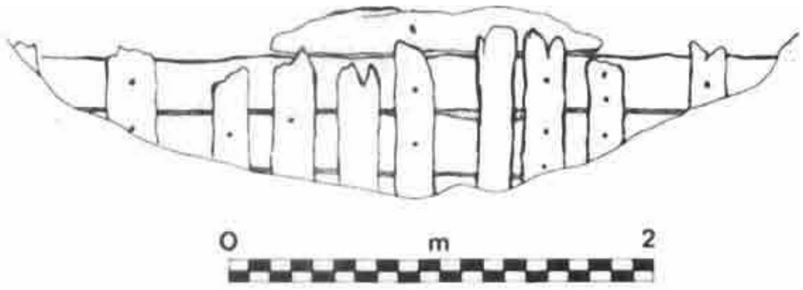
Construction Traits
Maststep – Not preserved
Floor/futtock connection – No
Planking fasteners – Treenails
Caulking – Moss
Sheathing – ?
Keel/sternpost connection – Not known

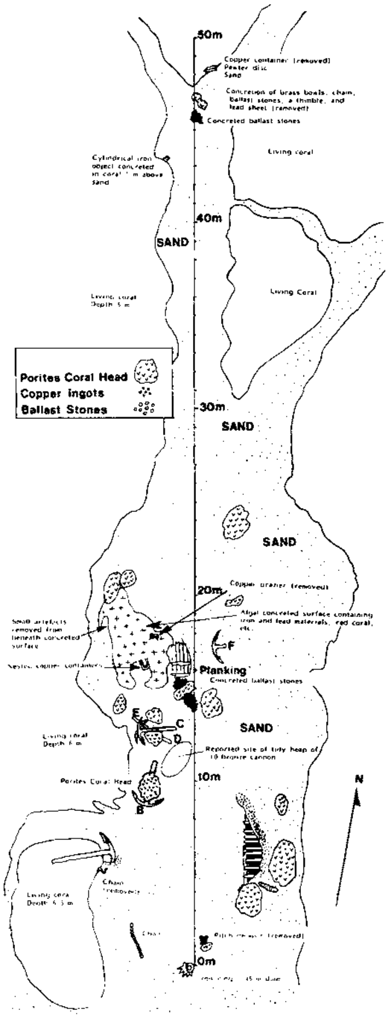
Design Traits
Hull shape – Flat botton, sharp turn of the bilge
Construction marks –
Evidence for rising and narrowing -

Notes – Dutch-built *verlanger*

Refs:
Lemée, C., 2006. The Renaissance Shipwrecks from Chrstianshavn. Ships and Boats of the North, Volume 6. Roskilde: The Viking Ship Museum.

Santo António




50m
Copper container (removed)
Pewter disc
Sand
Concretion of brass bowls, chain, ballast stones, a thimble, and lead sheet (removed)
Concreted ballast stones
Living coral
Cylindrical iron object concreted in coral 1 m above sand
40m
SAND
Living Coral
Living coral
Depth 5 m
Porites Coral Head
Copper ingots
Ballast Stones
30m
SAND
SAND
20m
Copper brazier (removed)
Algal concreted surface containing iron and lead materials, red coral, etc.
Small artefacts removed from beneath concreted surface
Nested copper containers
F
Planking
Concreted ballast stones
E
C
D
SAND
Living coral
Depth 6 m
Reported site of tidy heap of 10 bronze cannon
10m
Porites Coral Head
B
N
Chain (removed)
Living coral
Depth 6.5 m
Chain
0m
b

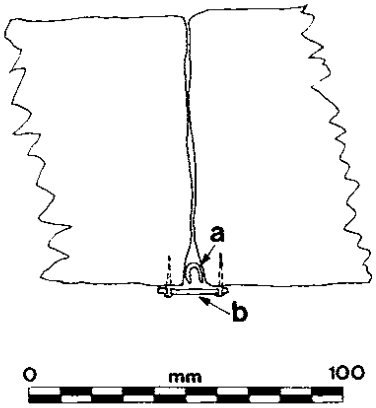
Fundamentals
Chronology: 1585-1589
Place built – Portugal
Place lost – Seychelles
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –

Construction Traits
Maststep – N/A.
Floor/futtock connection – Iron nails.
Planking fasteners – Iron nails.
Caulking – N/A.
Sheathing – N/A.
Keel/sternpost connection – N/A.

Design Traits
Hull shape – round.
Construction marks –
Evidence for rising and narrowing –

Notes –

Ref:
.



Cadiz 2

Delta 2, *San Giorgio*

Incomplete

Fundamentals
Chronology: 1587
Place built – Genoa ?
Place lost –
Preserved – 18 x 5 m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) – ? x ? cm
Frames section (s/m) – ? x ? cm
R&S – ? cm
Plank thickness – 5 cm

Construction Traits
Maststep – Mediterranean
Floor/futtock connection – vertical scarf
Planking fasteners – Nails
Caulking – ?
Sheathing – ?
Keel/sternpost connection – Butt joined

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes – Originally presented at IKUWA V, there has been no new information about this ship, which has Mediterranean built characteristics.

Alderney

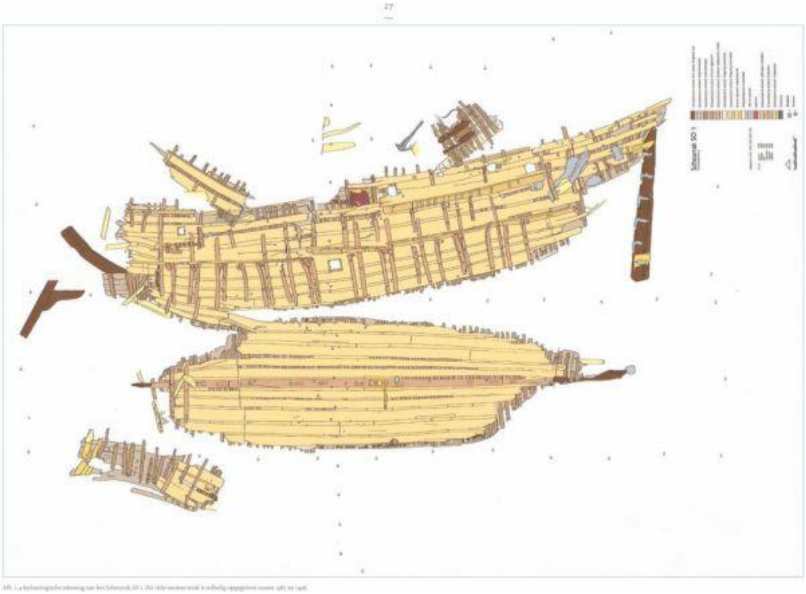
Fundamentals
Chronology: 1592
Place built –
Place lost – England
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –

Construction Traits
Maststep – Mediterranean
Floor/futtock connection – vertical scarf
Planking fasteners – Nails
Caulking – ?
Sheathing – ?
Keel/sternpost connection – Butt joined

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes – Originally presented at IKUWA V, there has been no new information about this ship, which has Mediterranean built characteristics.

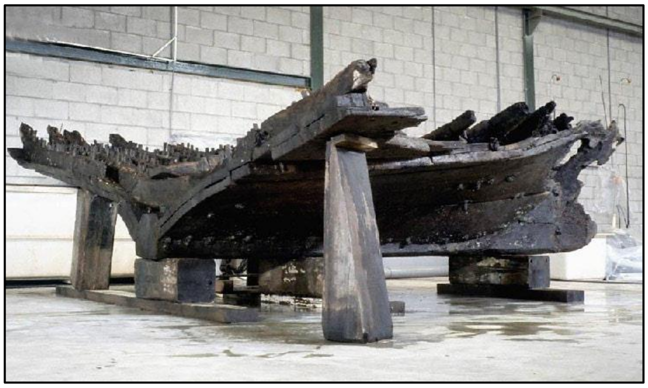
Scheurrak SO 1

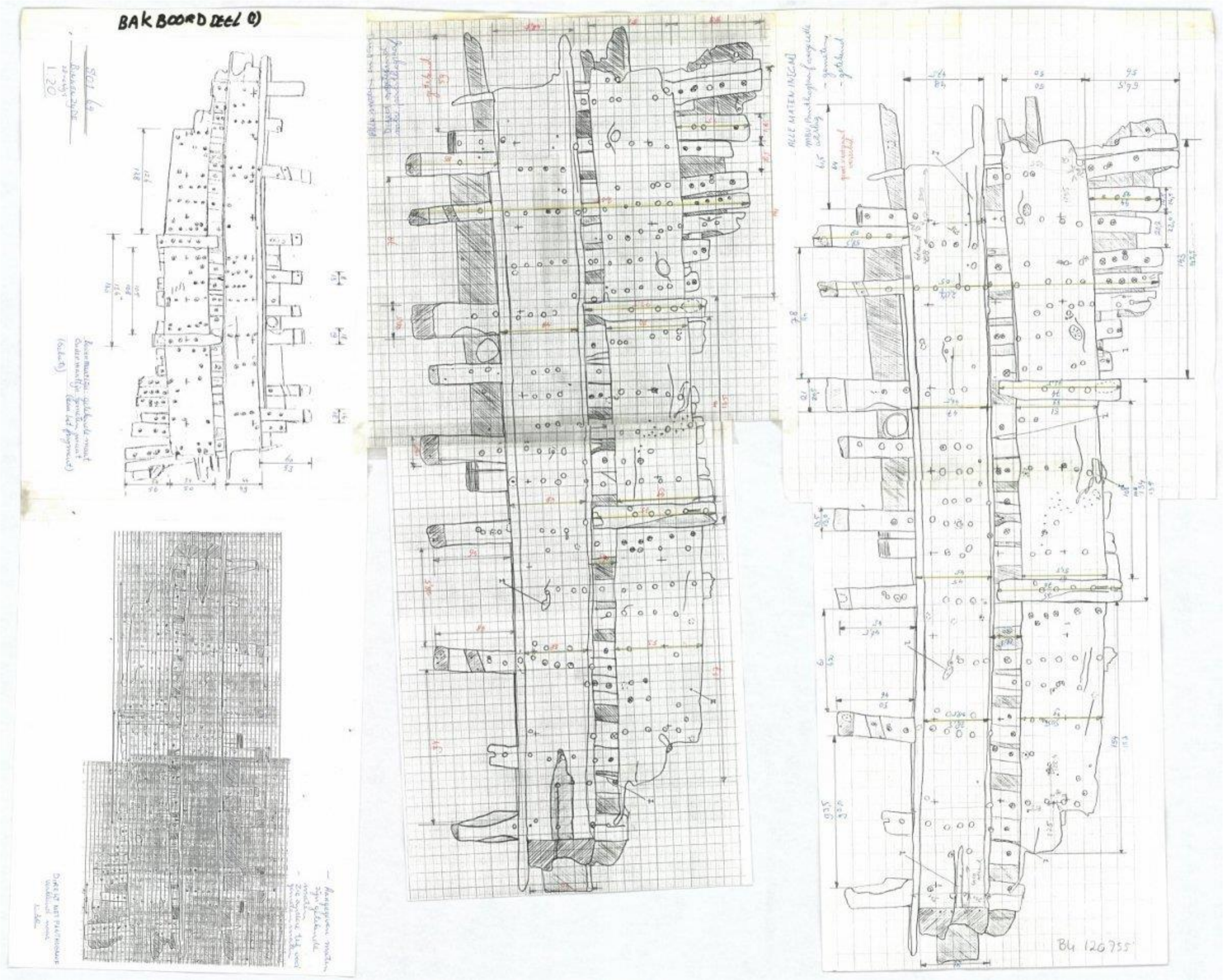


Incomplete

Fundamentals

Chronology: 1593
Place built – Netherlands
Place lost – Netherlands
Preserved – ? x ? m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) – ? x ? cm
Frames section (s/m) – ? x ? cm
R&S – ? cm
Plank thickness – 2 x 7 cm (double)



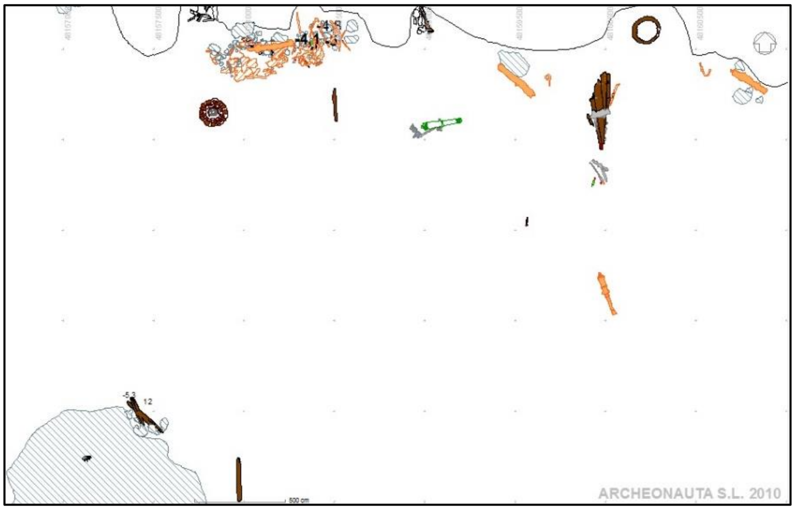

BAKBOORD DEEL (1)
1:20
B4 120755

Construction Traits
Maststep – ?
Floor/futtock connection – ?
Planking fasteners – Treenails
Caulking – ?
Sheathing – ?
Keel/sternpost connection – ?

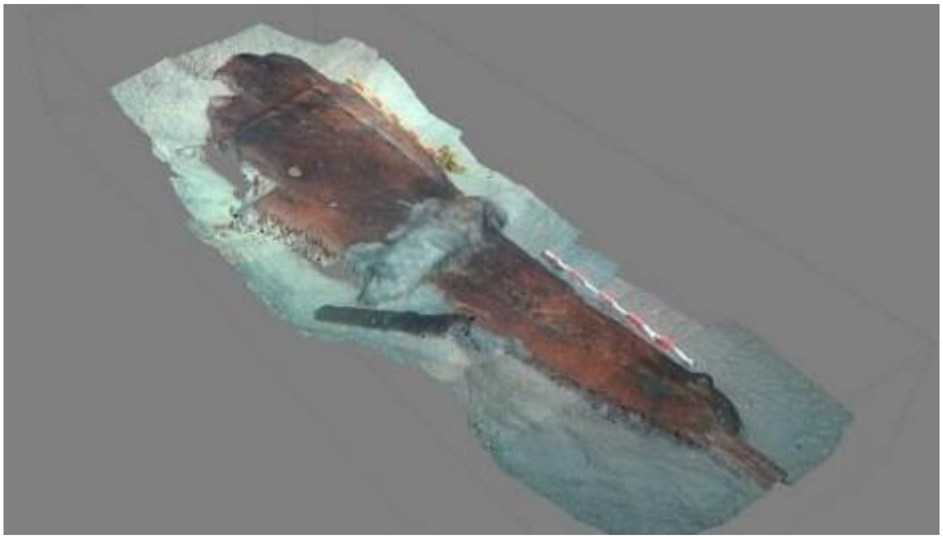
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes – .

Punta Restelos


12
500 cm
ARCHEONAUTA S.L. 2010

Fundamentals
Chronology: 1597
Place built –
Place lost – Spain
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –



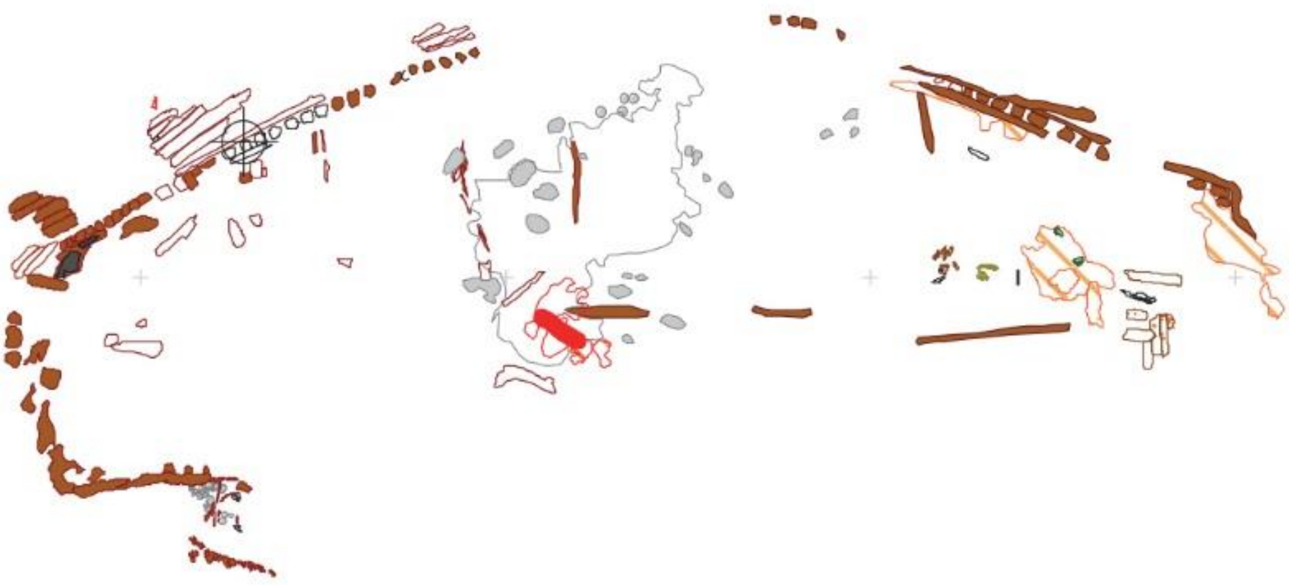
Construction Traits
Maststep – Mediterranean
Floor/futtock connection – vertical scarf
Planking fasteners – Nails
Caulking – ?
Sheathing – ?
Keel/sternpost connection – Butt joined

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes – .

Ribadeo

Santiago de Galicia



Fundamentals

Chronology: 1597

Place built - Naples

Place lost –

Preserved – 30 x 10 m

Length reconstructed – ? m; Beam reconstructed – ? m

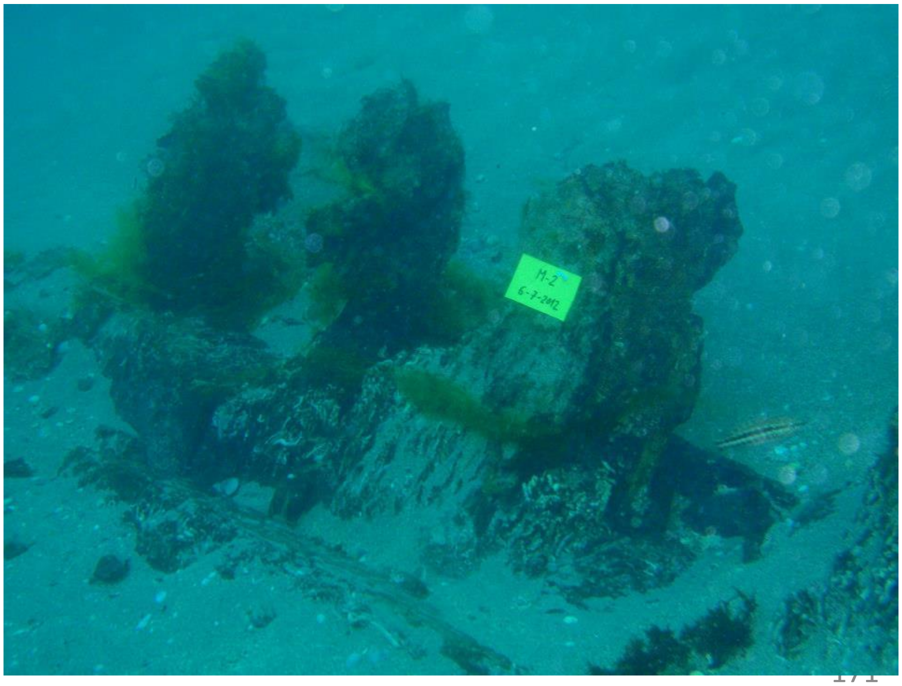
Keel length – ?

Keel section (s/m) – ? x ? cm

Frames section (s/m) – 25 x 25 cm

R&S – 50 cm

Plank thickness – 12 – 15 cm

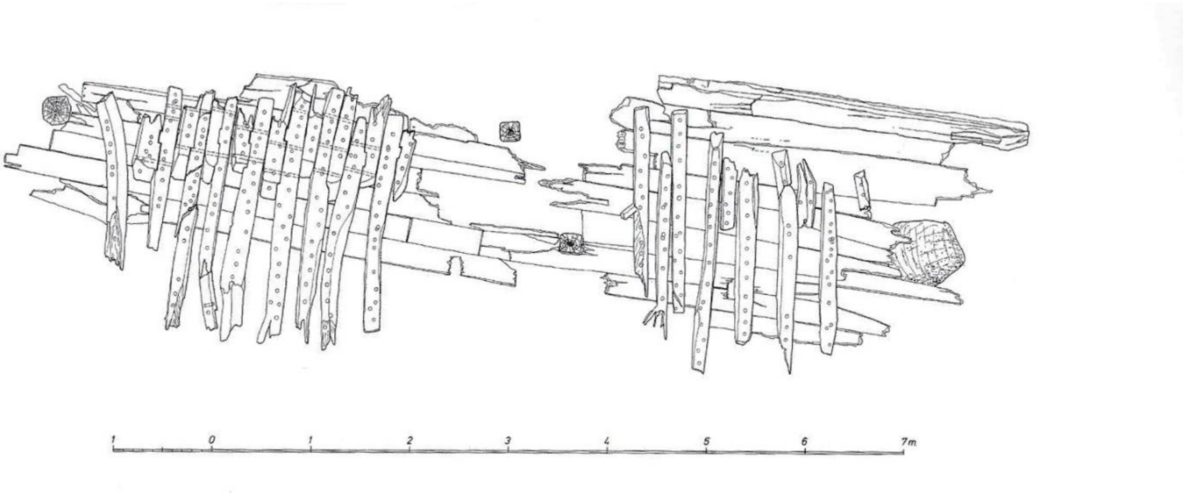


Construction Traits
Maststep – Mediterranean ? Enlarged Keelson ?
Floor/futtock connection – ?
Planking fasteners – Nails round
Caulking – Oakum between planks
Sheathing – full lead sheathing (lower hull)
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

B&W 7



Fundamentals
Chronology: 1590-1615
Place built – Denmark
Place lost –
Preserved – 10 x 3.2 m
Length reconstructed – 20 m; Beam reconstructed – ? m
Keel length – ?
Keel section (s/m) – 26 x 25 cm
Keelson (s/m) - ?
Floors section (s/m) – floors 20 x 22 cm
R&S – 35 cm
Plank thickness – 5 cm

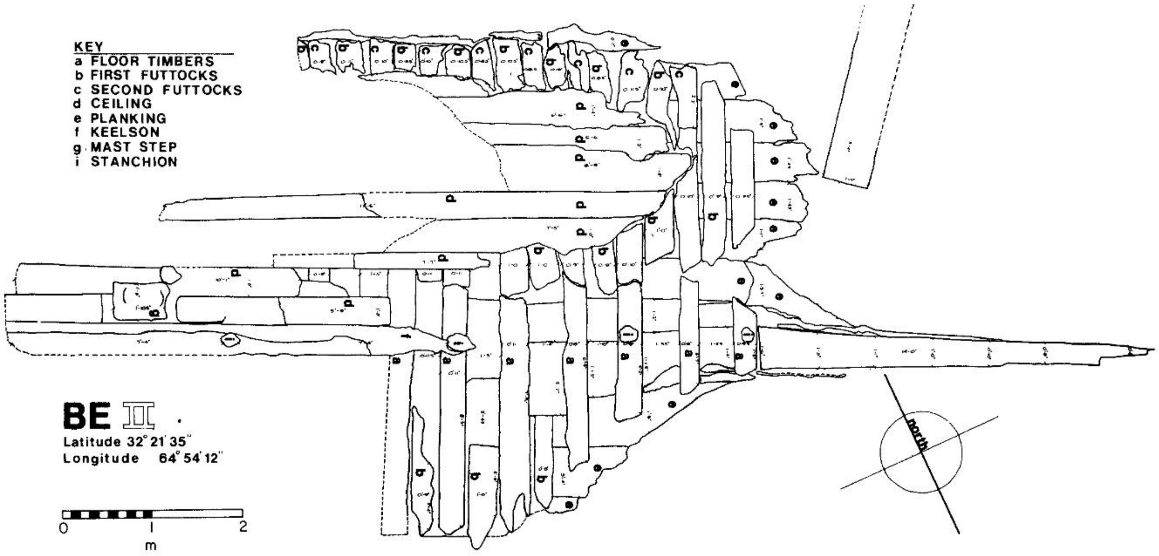
Construction Traits
Maststep – N/A
Floor/futtock connection – dovetailed w/ treenails and iron nails
Planking fasteners – Treenails
Caulking – ?
Sheathing – ?
Keel/sternpost connection – Sternpost mortised into keel

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

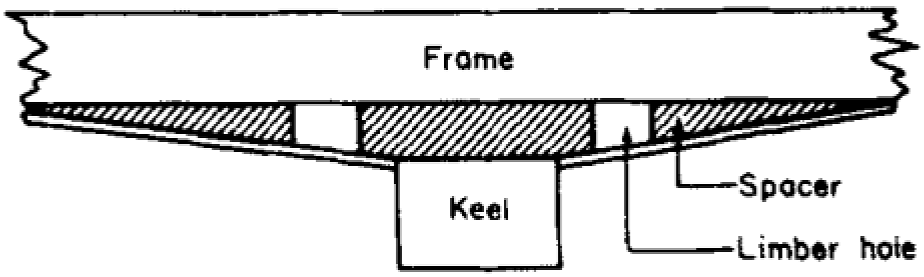
Notes – Oak and Beech

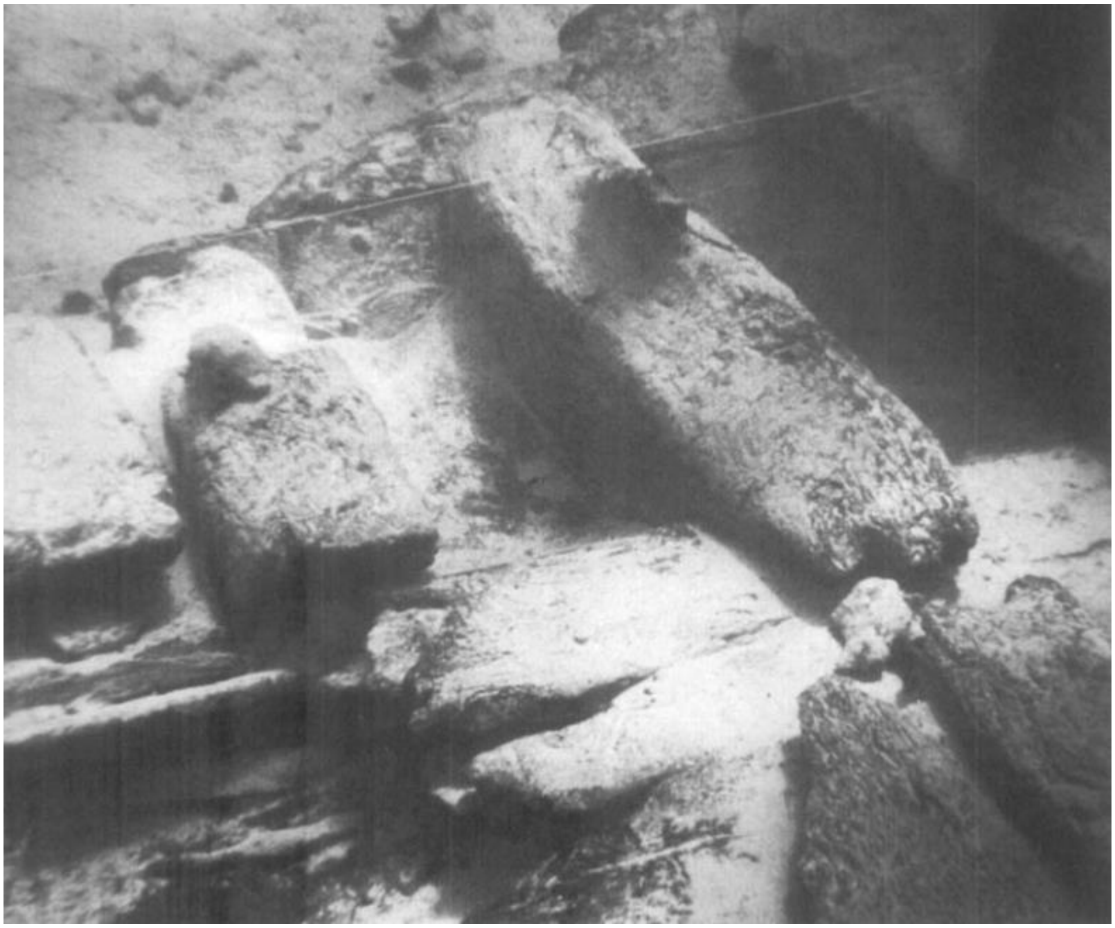
Refs:
Lemée, C., 2006. The Renaissance Shipwrecks from Chrstianshavn. Ships and Boats of the North, Volume 6. Roskilde: The Viking Ship Museum.

Stonewall


KEY
a FLOOR TIMBERS
b FIRST FUTTOCKS
c SECOND FUTTOCKS
d CEILING
e PLANKING
f KEELSON
g MAST STEP
i STANCHION
BE II
Latitude 32° 21' 35"
Longitude 64° 54' 12"
0
1
2
m
north

Fundamentals
Chronology: 1600-1700
Place built – Spain.
Place lost – Bermuda.
Preserved – ? x ? m
Length reconstructed – 45.7 m; Beam reconstructed – 12.8 m.
Keel length – ?
Keel section (s/m) – ? x ? cm
Floors section (s/m) – Floor timber 28 x ? cm
R&S – 70 cm.
Plank thickness – 7.5 cm.


Frame
Keel
Spacer
Limber hole



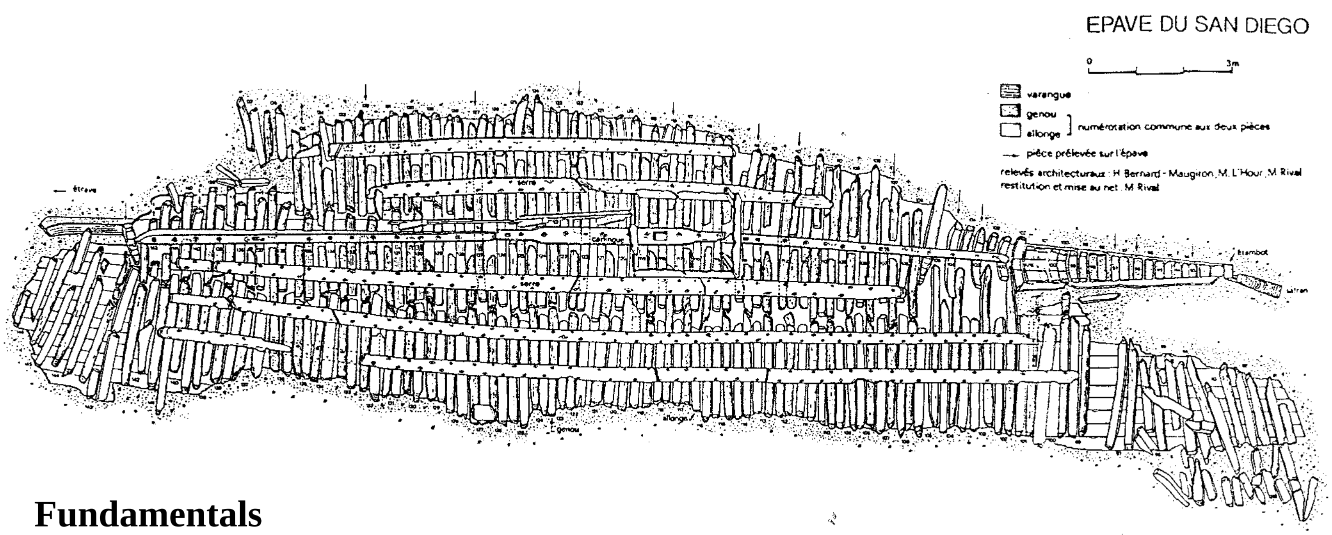
Construction Traits
Maststep – Wood block?.
Floor/futtock connection –Scarf w/ treenails?.
Planking fasteners – Iron nails?.
Caulking – N/A.
Sheathing – N/A.
Keel/sternpost connection - ?.

Design Traits
Hull shape – Undetermined.
Construction marks –
Evidence for rising and narrowing –

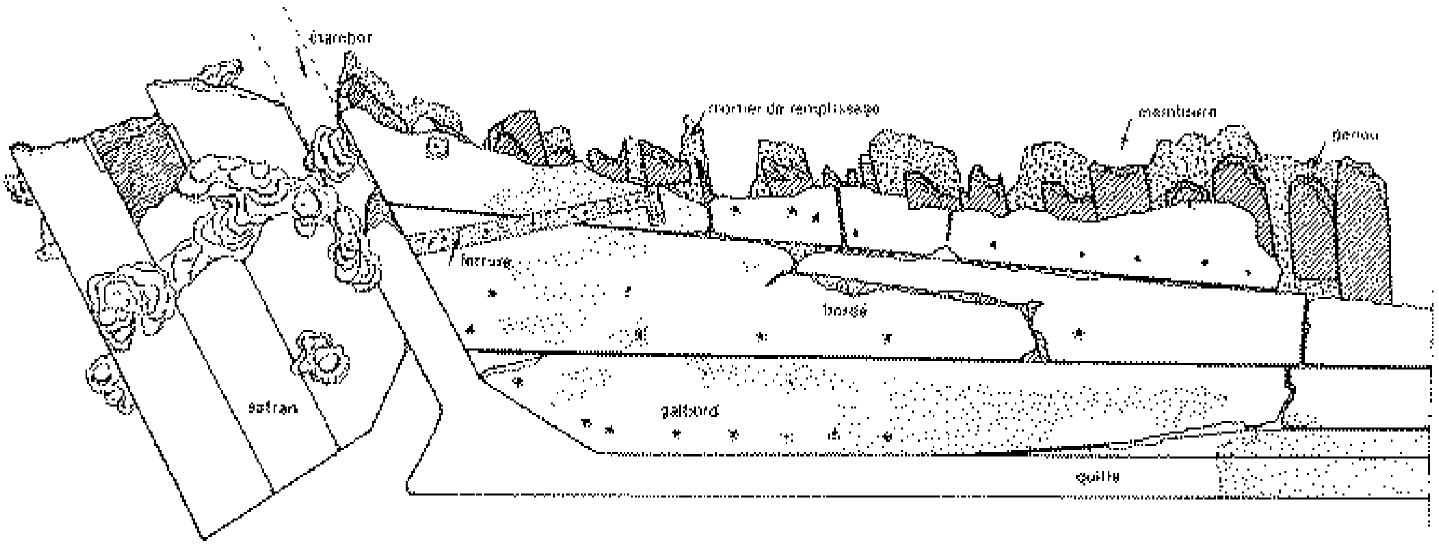
Notes –

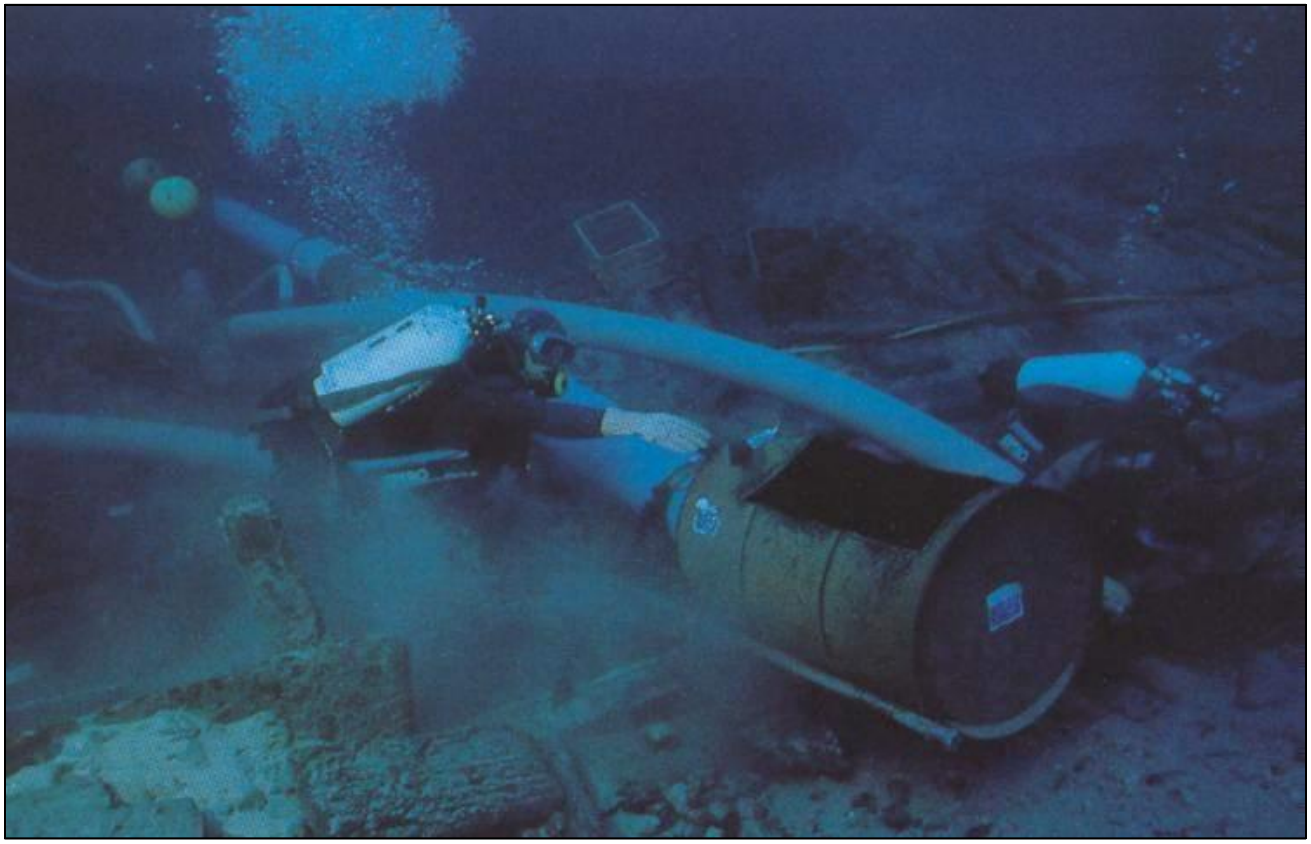
Refs.:
Dethlefsen, E. S., Davidson, E. and Buchman, D. L., 1977, The Stonewall wreck Interim report on a 17th century Spanish vessel wrecked off Bermuda. *IJNA*, **6**, 315-329.

San Diego


EPAVE DU SAN DIEGO
0
3m
varangue
genou
allonge
numérotation commune aux deux pièces
pièce prélevée sur l'épave
relevés architecturaux : H Bernard - Maugiron, M. L'Hour, M Rival
restitution et mise au net : M Rival
étrave
serre
carlingue
genou
allonge
étambot
safran

Fundamentals
Chronology: 1600
Place built – Philippines
Place lost –
Preserved – ? x ? m
Length reconstructed – 37.5 m; Beam reconstructed – 11.3 m
Keel length – 23.7 m
Keel section (s/m) – 30 x 36 cm (including false keel)
Floors section (s/m) – floors 19 x ? cm
R&S – 44 cm
Plank thickness – 6.5-7 cm


étambot
mortier de remplissage
membrure
genou
fourrure
bordé
safran
galbord
quille



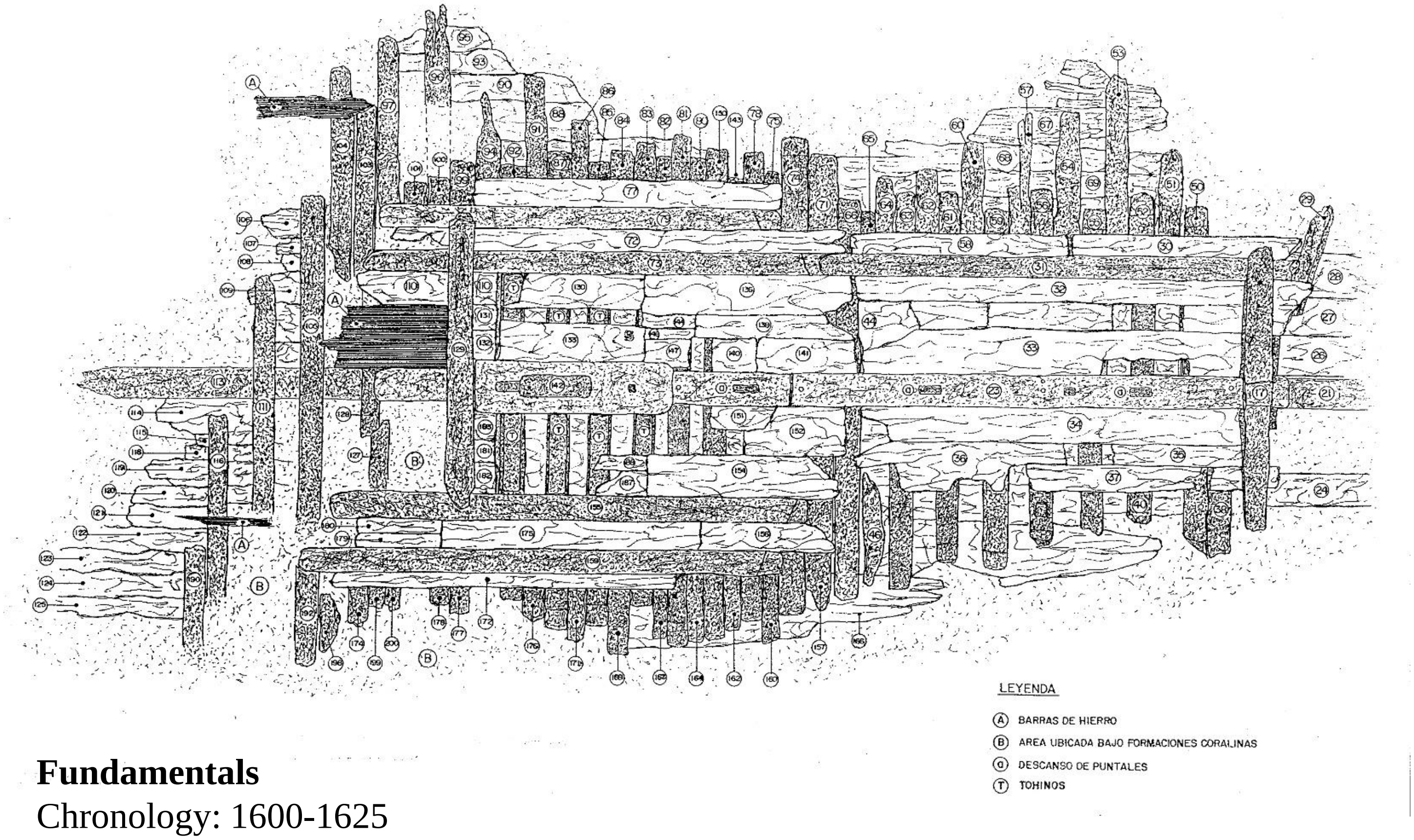
Construction Traits
Maststep – Enlarged keelson.
Floor/futtock connection – dovetail joints with one nail?
Planking fasteners – Nails sq.
Caulking– Caulking (coconut fibers?) between the frames.
Sheathing – ?
Keel/sternpost connection – Not disassembled

Design Traits
Hull shape – Not recorded
Construction marks –
Evidence for rising and narrowing -

Notes – This ship was salvaged, not excavated.

Ref:
L'hour, M., 1998, À l'aube de la construction navale espagnole en Asie: le San Diego (1600). *Archaeonautica* **14**.1, 237-241.

Fuxa


LEYENDA
Ⓐ BARRAS DE HIERRO
Ⓑ AREA UBICADA BAJO FORMACIONES CORALINAS
Ⓖ DESCANSO DE PUNTALES
Ⓣ TOHINOS

Fundamentals

Chronology: 1600-1625

Place built – Spain ?

Place lost –

Preserved – ? x ? m

Length reconstructed – 25.7 m; Beam reconstructed – 8.6 m

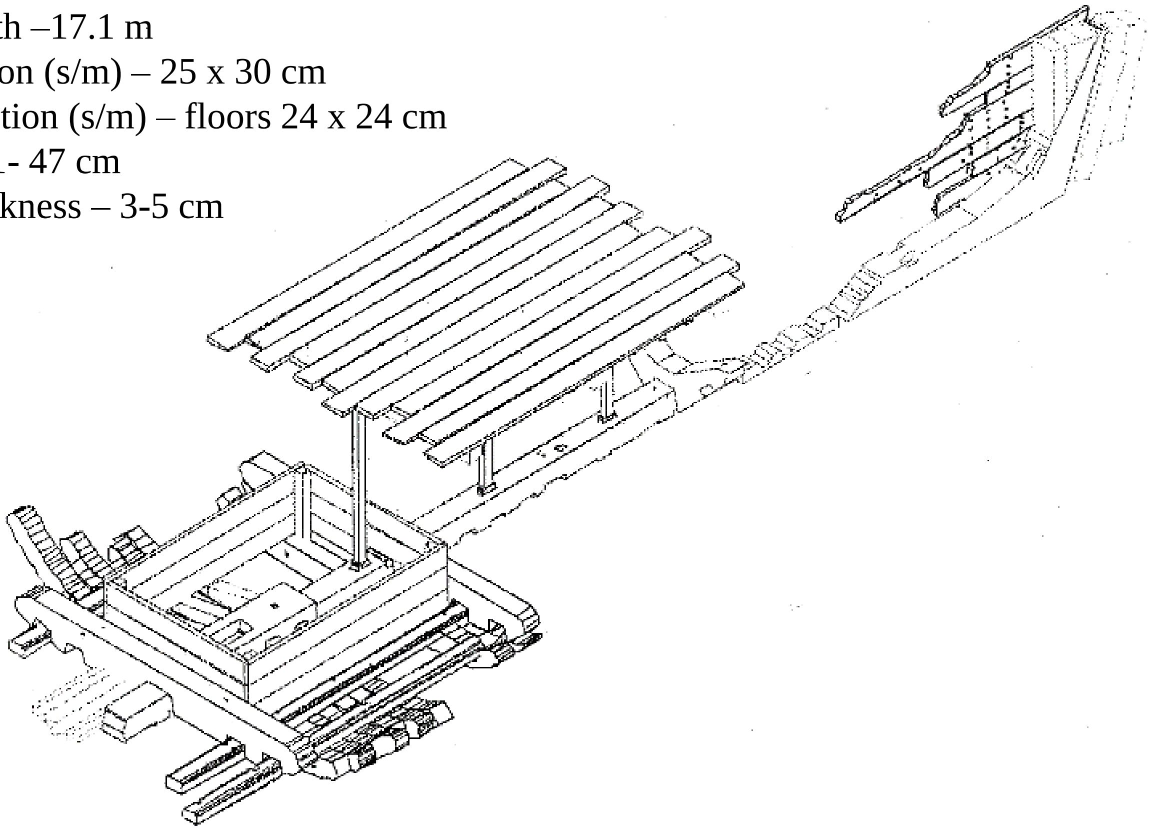
Keel length –17.1 m

Keel section (s/m) – 25 x 30 cm

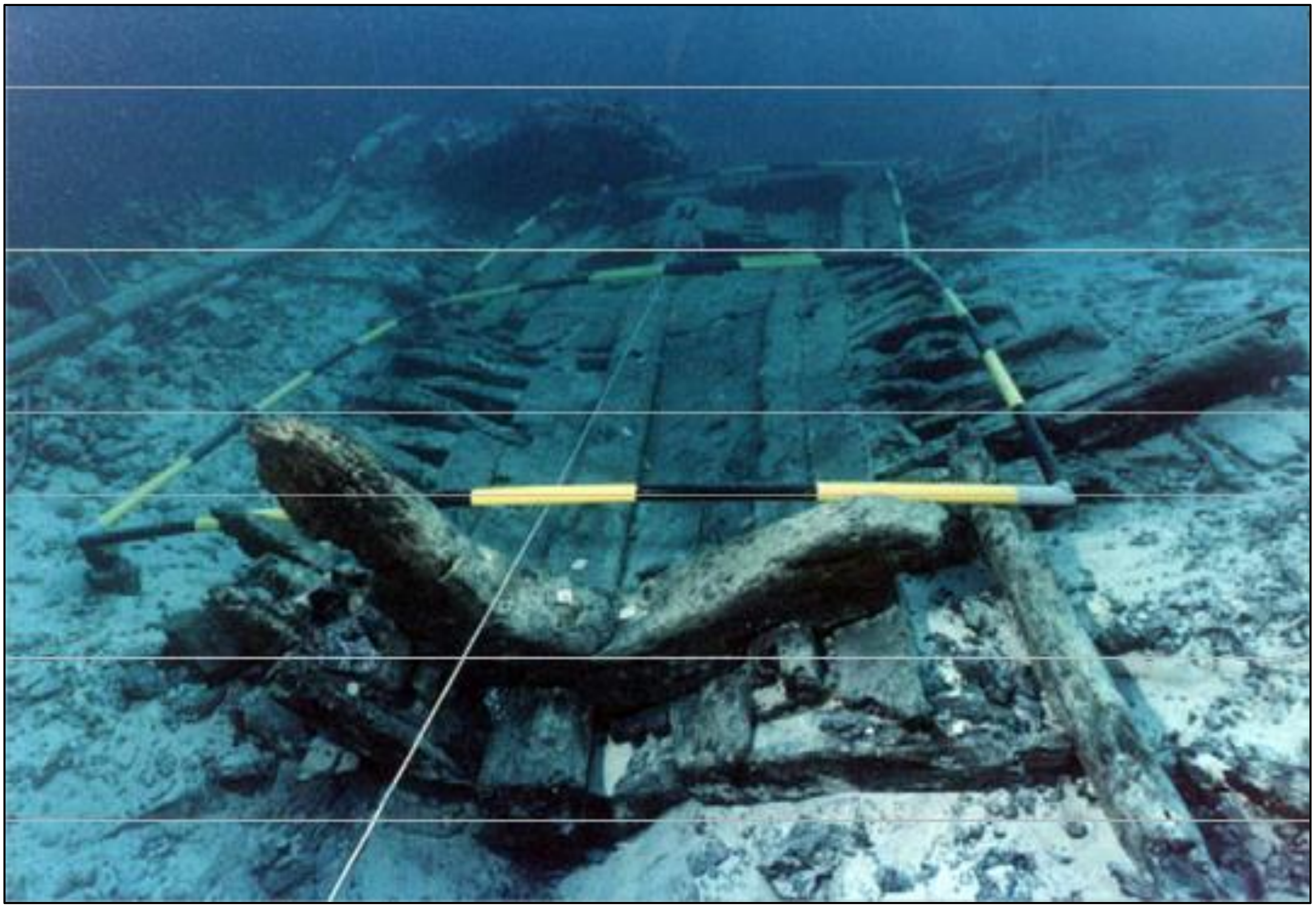
Floors section (s/m) – floors 24 x 24 cm

R&S – 41- 47 cm

Plank thickness – 3-5 cm



Refs.:



Construction Traits
Maststep – Expanded keelson.
Floor/futtock connection – Dovetail joints with treenails.
Planking fasteners – Nails sq.
Caulking – ?
Sheathing – lead patch on strake 215 and apparently the stem was also covered.
Keel/sternpost connection – Stern knee, but no stern heel reported.

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes – Raised and timbers destroyed.

Refs.:
…

Cadiz 1

Delta 1

Incomplete

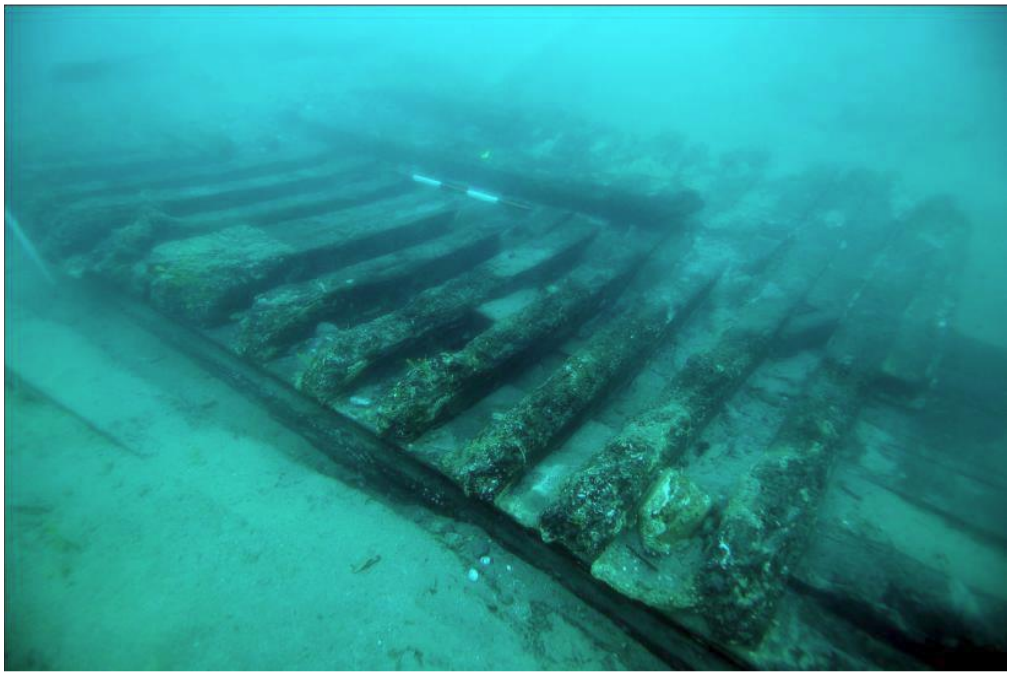
Fundamentals
Chronology: 1600-1650
Place built - ?
Place lost –
Preserved – ? x ? m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) – 33 x 28 cm
Floors section (s/m) – ? x ? cm
R&S – ? cm
Plank thickness – ? cm

Construction Traits
Maststep – Mediterranean? Enlarged keelson?
Floor/futtock connection – dovetail, iron
Planking fasteners – ?
Caulking – pitch and vegetable fibers
Sheathing – ?
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

Agropoli



Incomplete

Fundamentals

Chronology: 1475

Place built - ?

Place lost – Campania.

Preserved – ? x ? m

Length reconstructed – 23 m; Beam reconstructed – 5,75? m.

Keel length – ?

Keel section (s/m) – ? x ? cm

Frames section (s/m) – ? x ? cm

R&S – ? cm

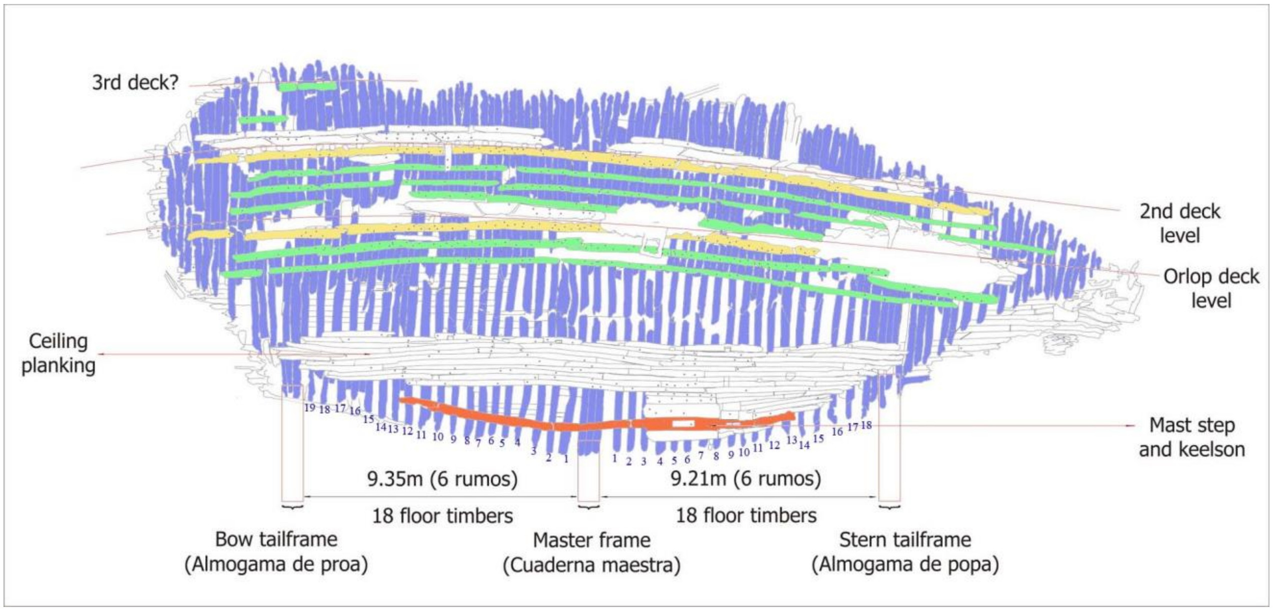
Plank thickness – ? cm

Construction Traits
Maststep – Mediterranean? Enlarged keelson?
Floor/futtock connection – ?
Planking fasteners – ?
Caulking – ?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes –

IDM-003


3rd deck?
2nd deck level
Orlop deck level
Ceiling planking
Mast step and keelson
19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
9.35m (6 rumos)
9.21m (6 rumos)
18 floor timbers
18 floor timbers
Bow tailframe
(Almogama de proa)
Master frame
(Cuaderna maestra)
Stern tailframe
(Almogama de popa)

Fundamentals

Chronology: 1600-1650

Place built – Portugal ?

Place lost –

Preserved – 32.5m x 12.9m

Length reconstructed – 40 m; Beam reconstructed – 13.86 m

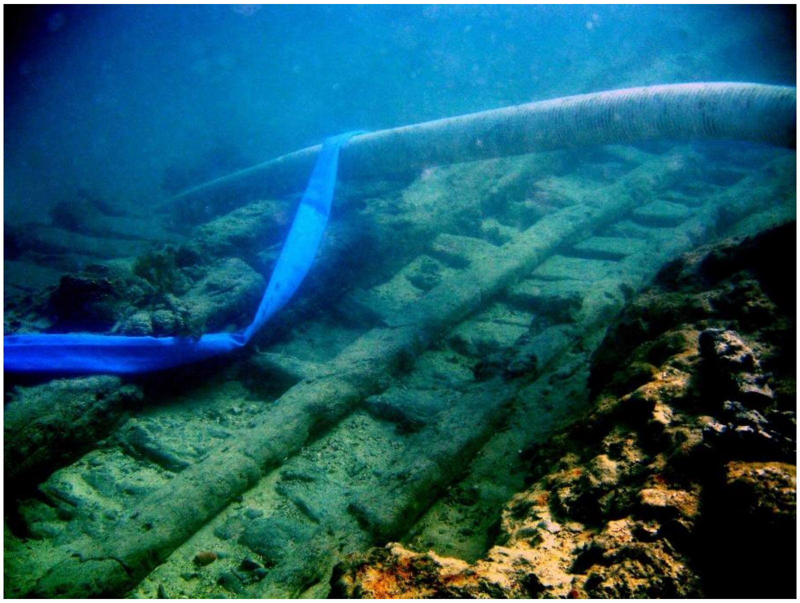
Keel length – 20.55- 27.7 m

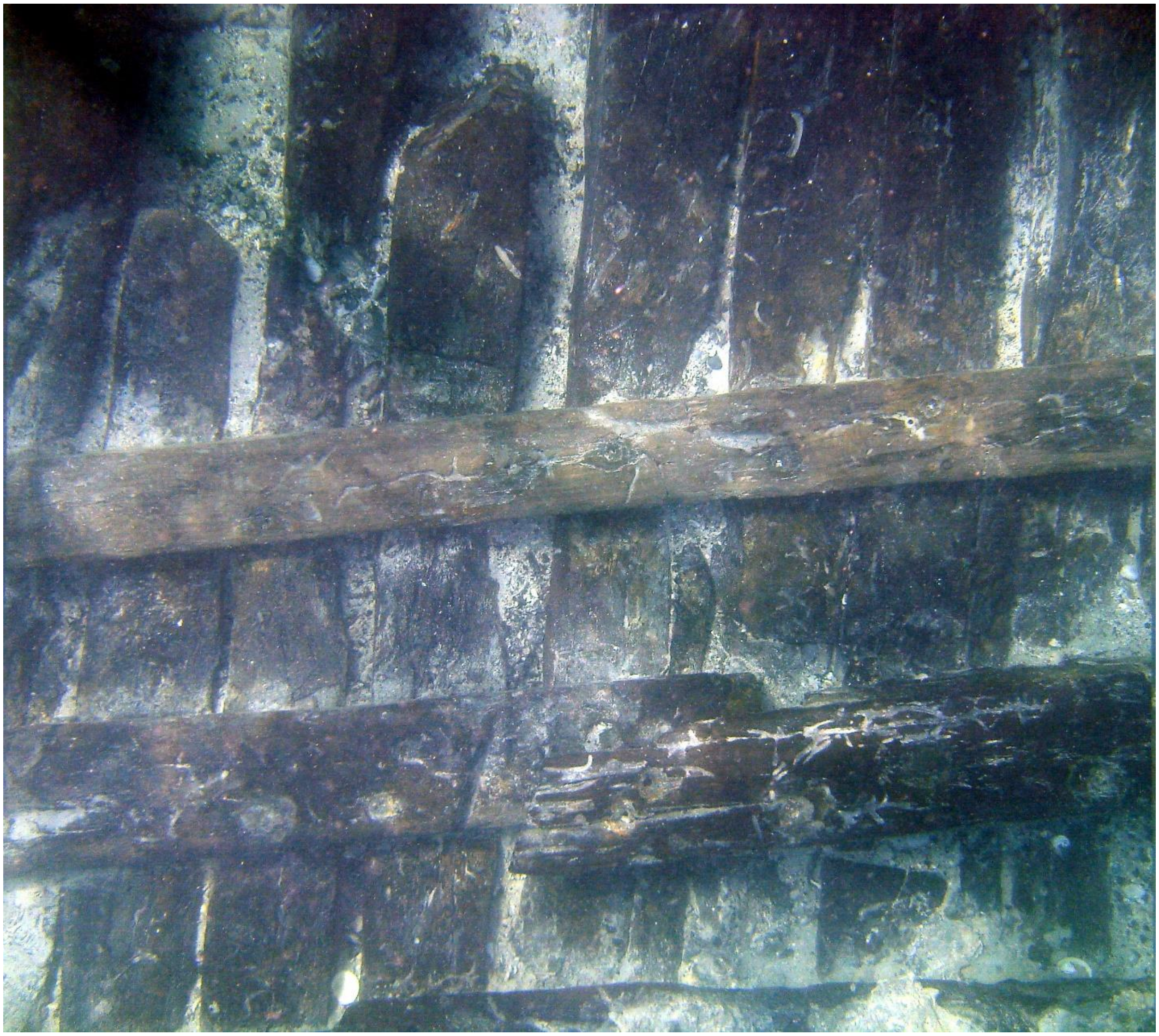
Keel section (s/m) – 28 x ? cm

Floors section (s/m) – Floor timbers 24 x 41 cm

R&S – 46.2 cm

Plank thickness – ? cm





Construction Traits
Maststep –Expanded keelson
Floor/futtock connection – dovetail, nails
Planking fasteners – ?
Caulking – Lead caulking
Sheathing – Full lead sheathing (lower hull)/lead strips
Keel/sternpost connection - ?

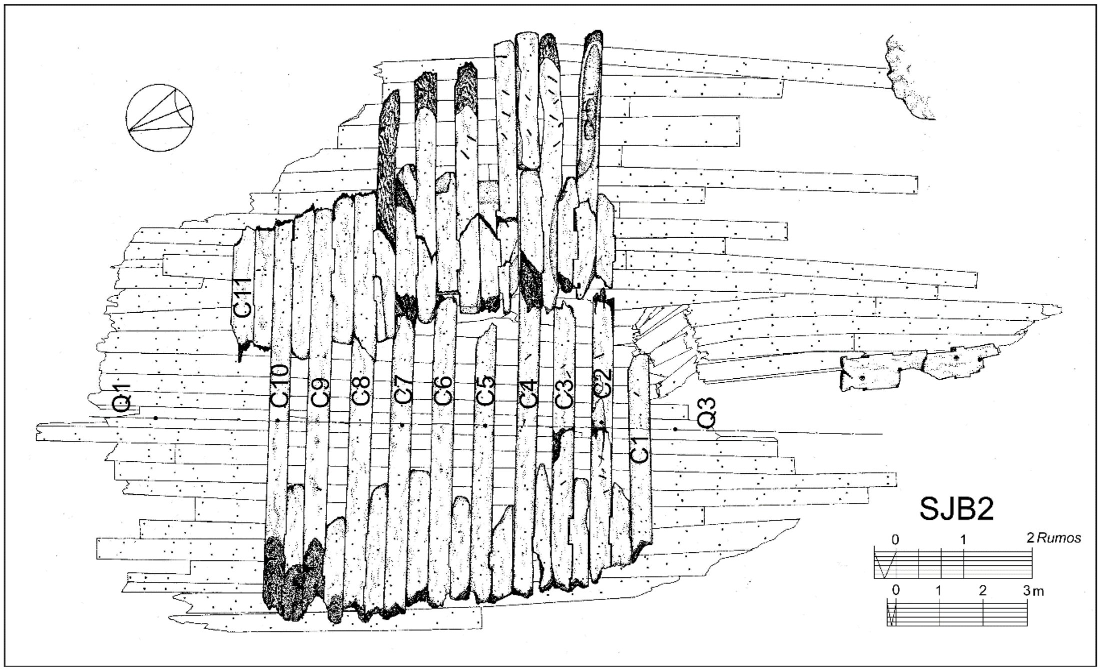
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes – Salvaged by treasure hunters

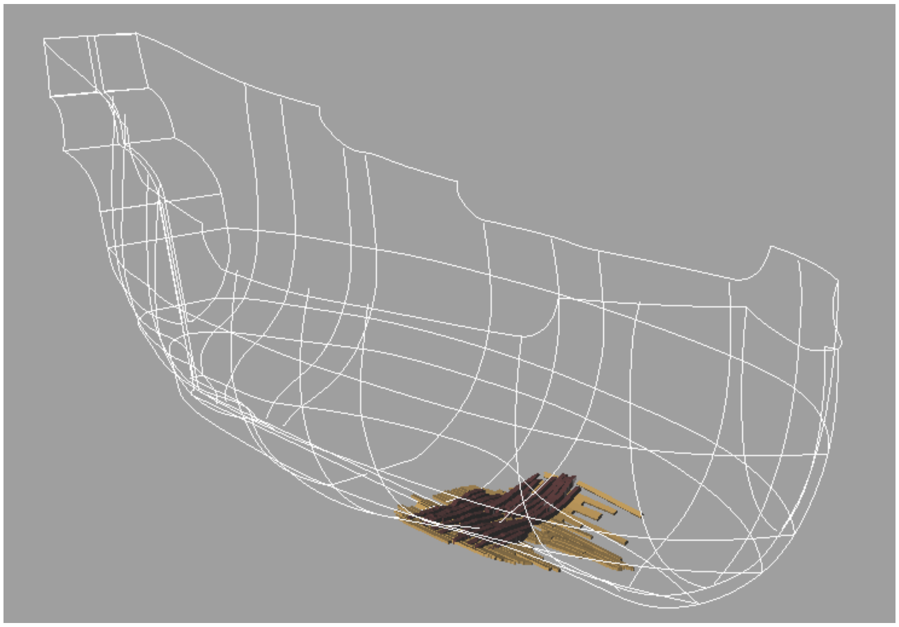
Refs.:
…

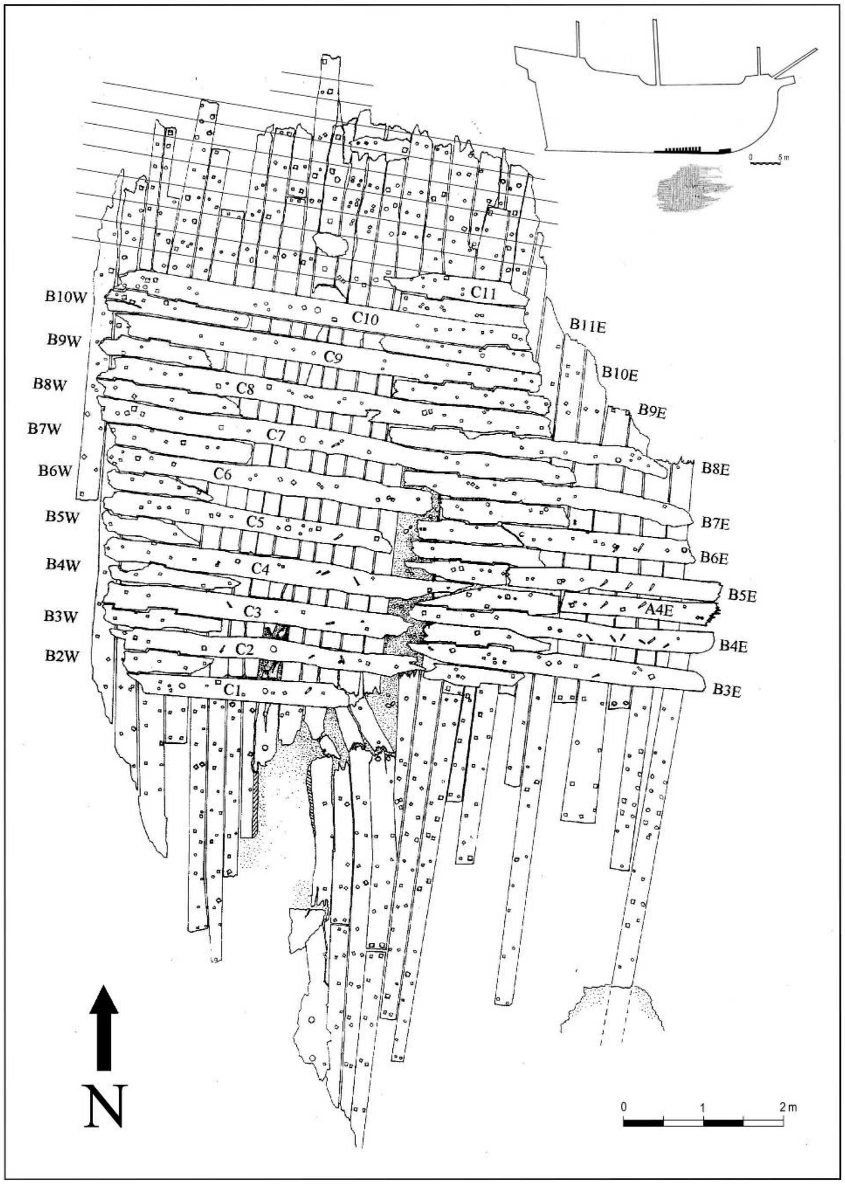
Pepper Wreck

N.ª S.ª dos Martires


C11
C10
C9
C8
C7
C6
C5
C4
C3
C2
C1
Q1
Q3
SJB2
0
1
2 Rumos
0
1
2
3 m

Fundamentals
Chronology: 1606
Place built – Lisbon ?
Place lost –
Preserved – 11 x 7 m
Length reconstructed – 39.3 m; Beam reconstructed – 12.3 m
Keel length – 27.7m
Keel section (s/m) – 25 x 46 cm
Floors section (s/m) –25 x 24 cm
R&S – 47 cm
Plank thickness – 11 cm




C11
C10
C9
C8
C7
C6
C5
C4
C3
C2
C1
B10W
B9W
B8W
B7W
B6W
B5W
B4W
B3W
B2W
B11E
B10E
B9E
B8E
B7E
B6E
B5E
A4E
B4E
B3E
N
0
1
2m
0
5m

Construction Traits
Mast step – Not preserved.
Floor/futtock connection – square dovetail joints w/ 3 iron nails
Planking fasteners – Nails sq. (2 per frame)
Caulking– twisted lead strap covered with two layers of oakum.
Sheathing – Lead straps over the seams (lower hull)
Keel/sternpost connection – Not preserved

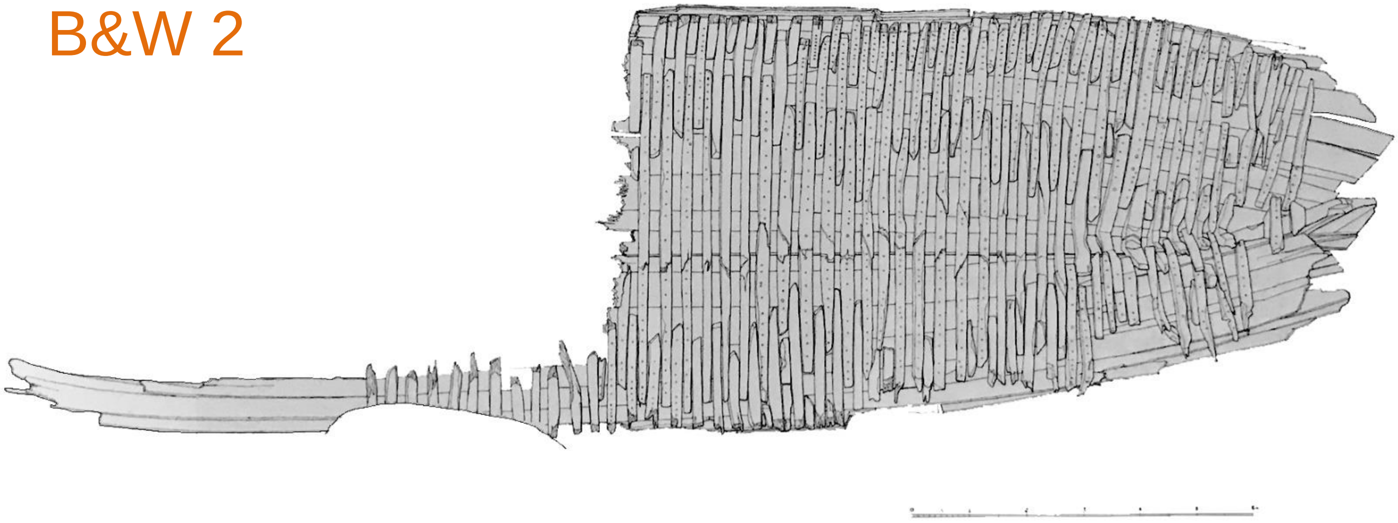
Design Traits
Hull shape – Flat floor + 1 arc
Construction marks –
Evidence for rising and narrowing –

Notes – Keel and frames: cork oak; and planking: pine.

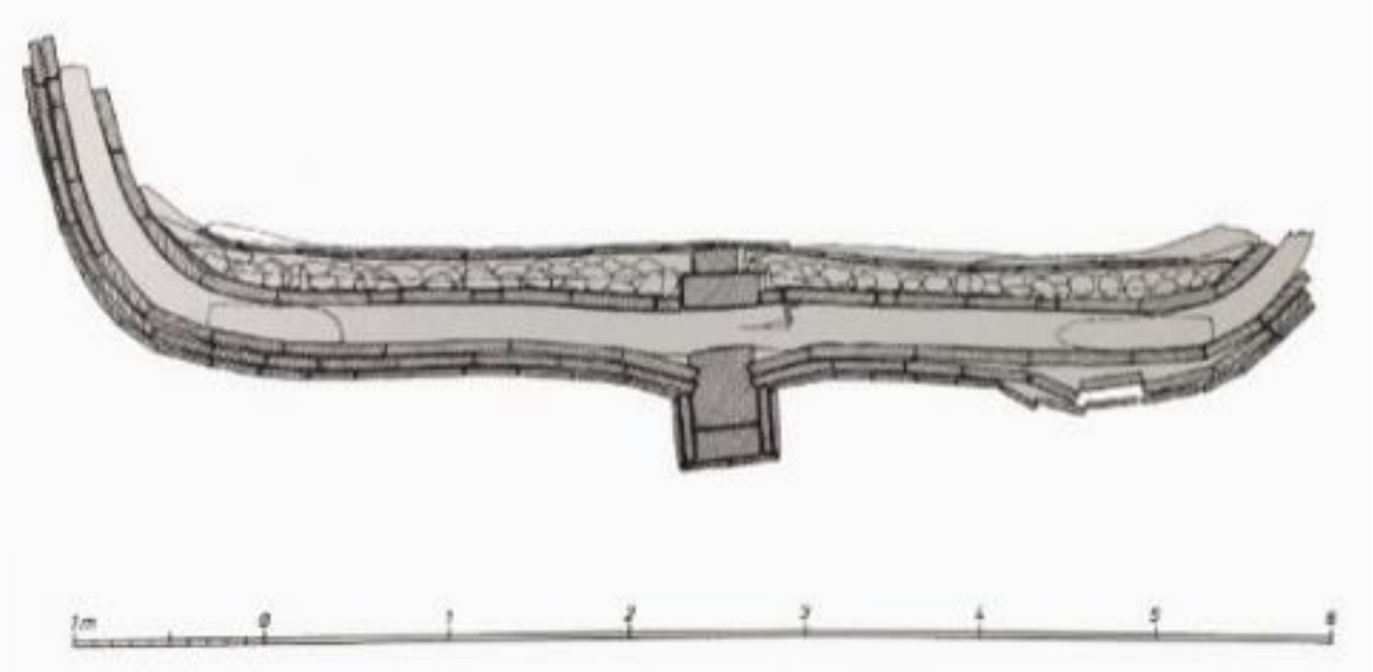
Ref:

Castro, F. V. D., 2005, *The Pepper Wreck: A Portuguese Indiaman at the Mouth of the Tagus River*. College Station.

B&W 2



Fundamentals
Chronology: 1606-1625
Place built – Denmark
Place lost –
Preserved – 14.5 x 7.5 m
Length reconstructed – 27 m; Beam reconstructed – 7.5 m
Keel length – ? m
Keel section (s/m) – 43 x 34 cm
Floors section (s/m) –16-26 x 20 cm
R&S – 38 cm
Plank thickness – 7.7 cm



Construction Traits
Mast step – Not preserved
Floor/futtock connection – No
Planking fasteners – Treenails
Caulking – Tarred animal hair with crushed glass.
Sheathing – Pine
Keel/sternpost connection – Sternpost mortised into keel.

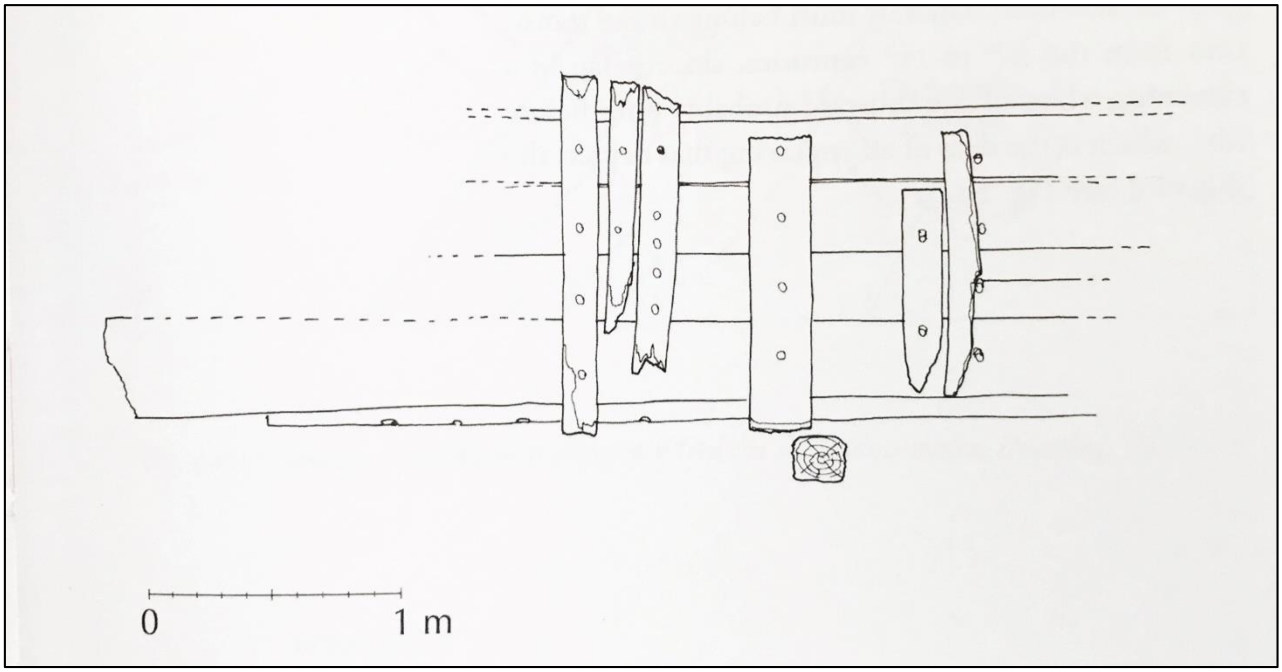
Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes – Dutch built

Refs:

Lemée, C., 2006. The Renaissance Shipwrecks from Chrstianshavn. Ships and Boats of the North, Volume 6. Roskilde: The Viking Ship Museum.

B&W 3



Fundamentals

Chronology: 1606-1609
Place built – Denmark
Place lost –
Preserved – 4 x 1 m
Length reconstructed – 20 m; Beam reconstructed – ? m
Keel length – Keel not preserved
Keel section (s/m) – ? x ? cm
Floors section (s/m) – 20 x 14 cm
R&S – ? cm
Plank thickness – 3.5 cm

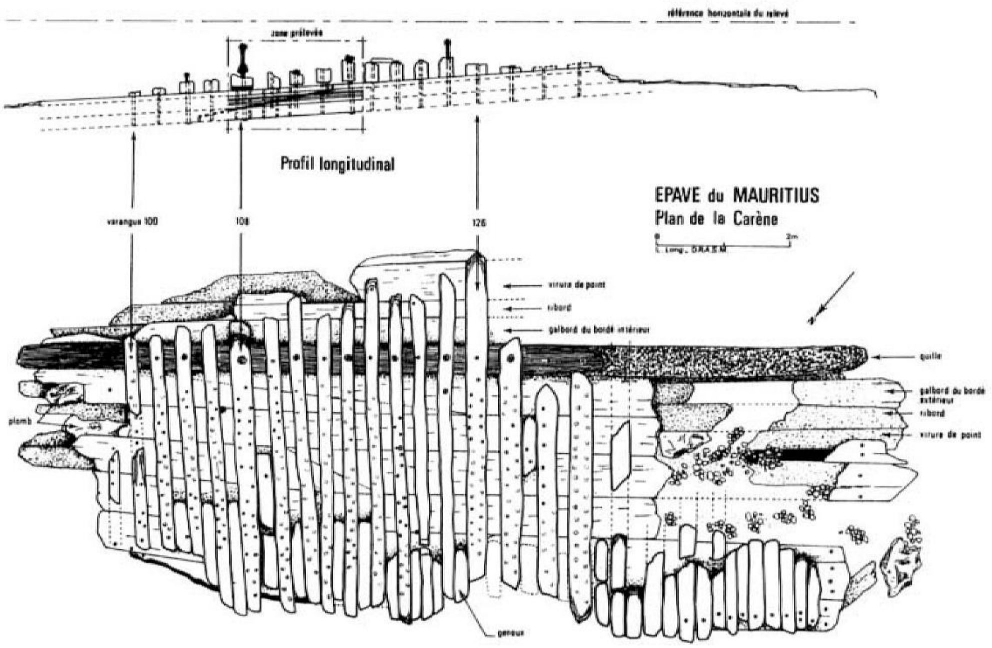
Construction Traits
Maststep – Not preserved
Floor/futtock connection – No
Marks: No
Planking fasteners – Lapstrake fastened with clenched nails; Treenails to the frames.
Caulking – ?
Sheathing – None
Keel/sternpost connection – N/A

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes – Oak lapstrake.

Refs:
Lemée, C., 2006. The Renaissance Shipwrecks from Chrstianshavn. Ships and Boats of the North, Volume 6. Roskilde: The Viking Ship Museum.

Mauritius


référence horizontale du relevé
zone prélevée
Profil longitudinal
EPAVE du MAURITIUS
Plan de la Carène
0
2m
L. Long., D.R.A.S.M.
varangue 100
108
126
virure de point
ribord
galbord du bordé intérieur
quille
galbord du bordé extérieur
ribord
virure de point
plomb
genoux

Fundamentals

Chronology: 1609

Place built – Netherlands

Place lost –

Incomplete

Preserved – ? m

Length reconstructed – ? m; Beam reconstructed – ? m

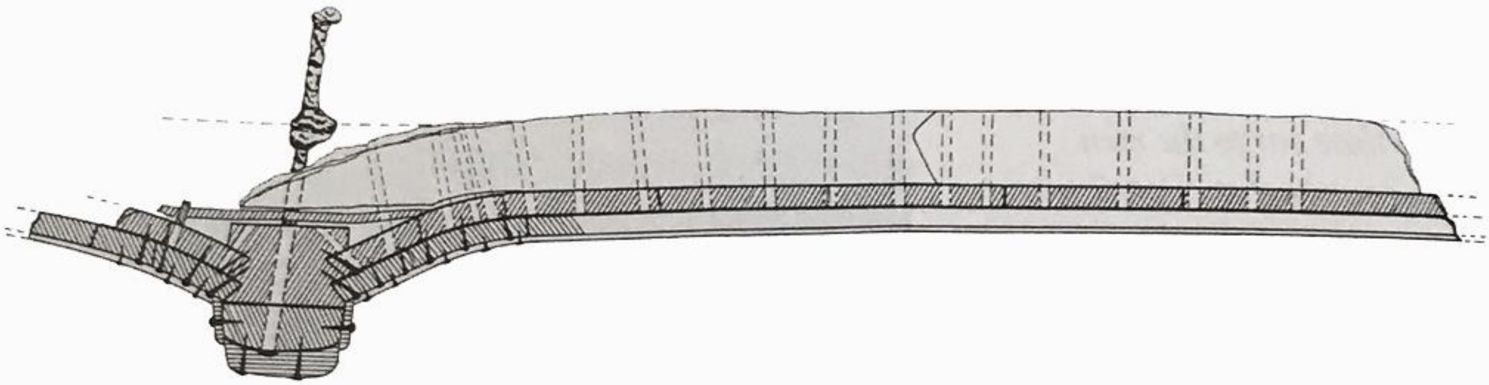
Keel length – ? m

Keel section (s/m) – ? x ? cm

Frames section (s/m) – ? x ? cm

R&S – ? cm

Plank thickness – ? cm

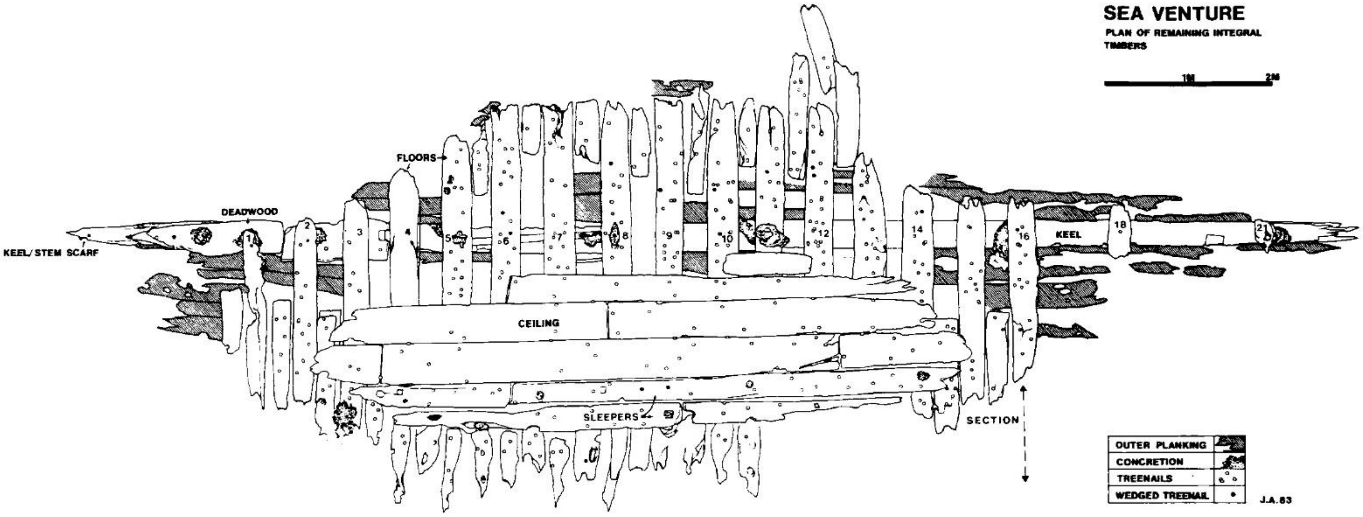


Construction Traits
Maststep – Mediterranean ? Enlarged Keelson ?
Floor/futtock connection – ?
Planking fasteners – ?
Caulking – ?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

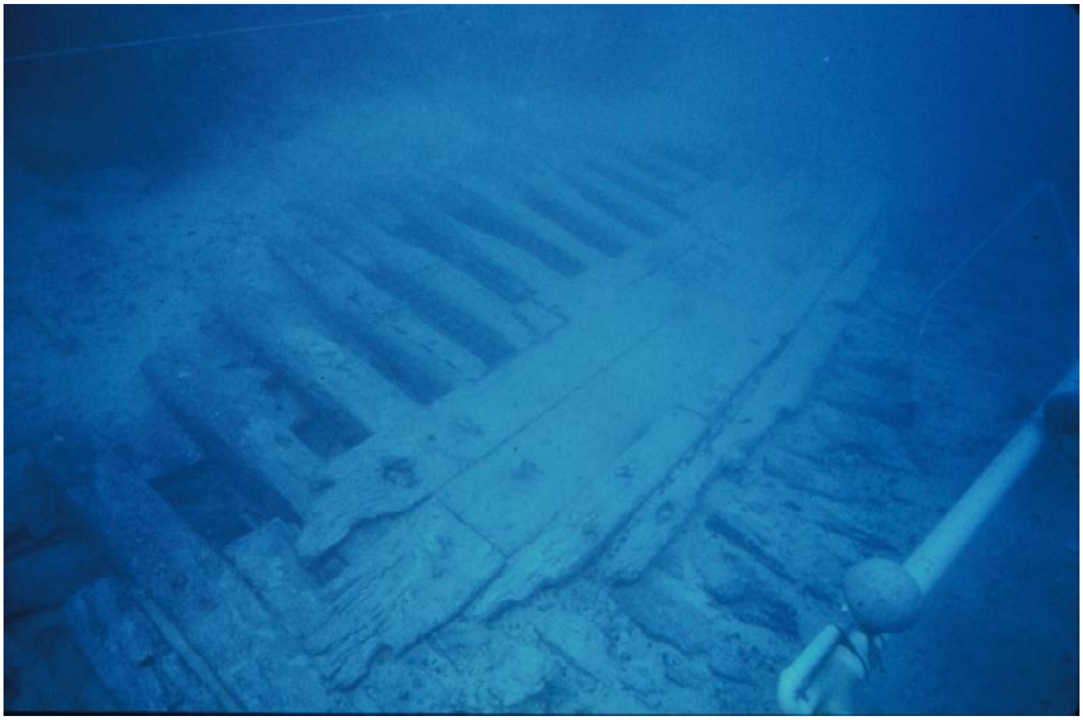
Notes –

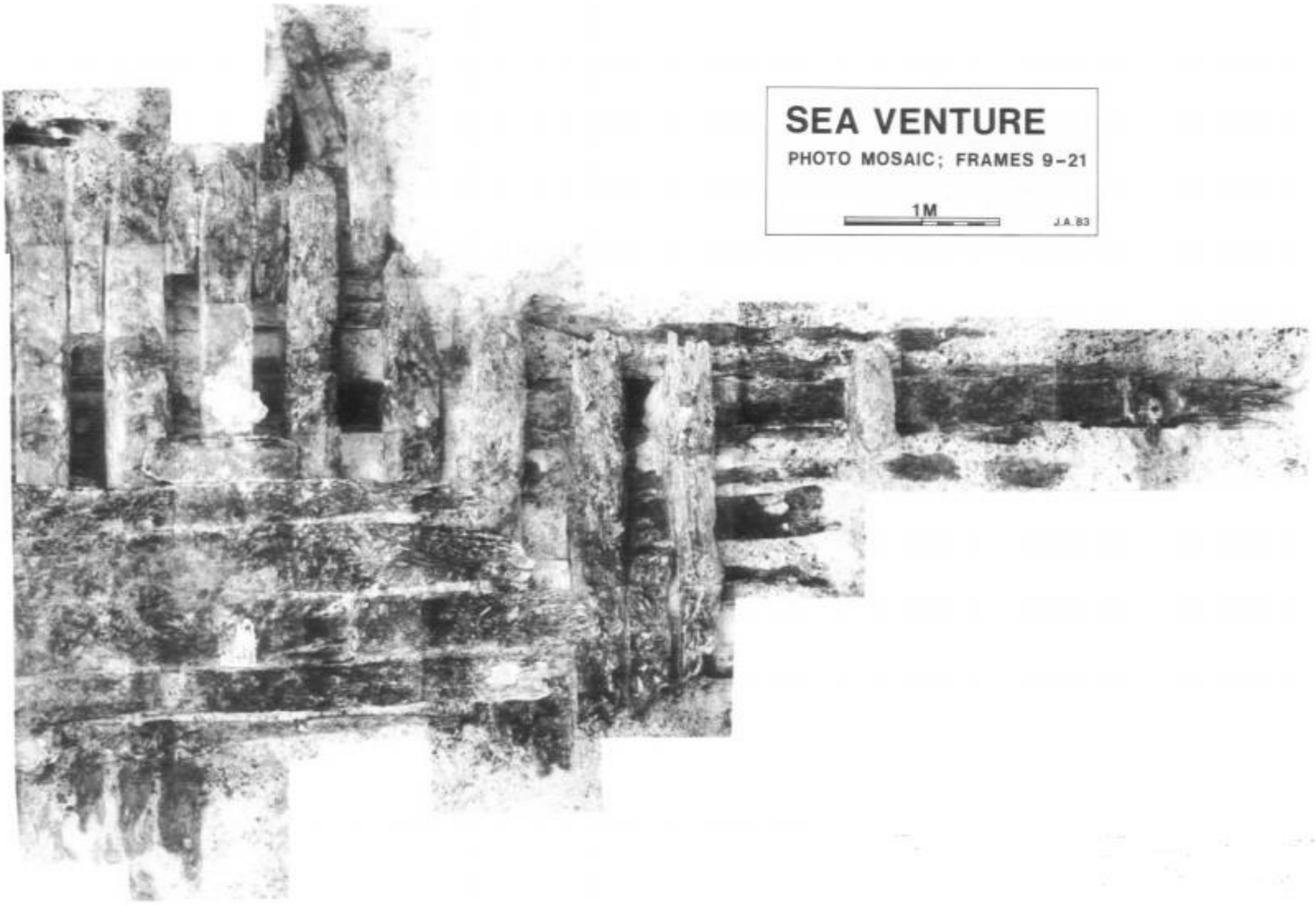
Sea Venture


SEA VENTURE
PLAN OF REMAINING INTEGRAL TIMBERS
1M
2M
FLOORS
DEADWOOD
KEEL/STEM SCARF
1
2
3
4
5
6
7
8
9
10
12
14
16
KEEL
18
21
CEILING
SLEEPERS
SECTION
OUTER PLANKING
CONCRETION
TREENAILS
WEDGED TREENAIL
J.A.83

Fundamentals
Chronology: 1609
Place built – England
Place lost –
Preserved – ? x ? m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – 23 m
Keel section (s/m) – 34/ ? cm
Floors section (s/m) – Floor timbers 30 /30 cm
R&S – ? cm
Plank thickness – ? / ? cm

Incomplete




SEA VENTURE
PHOTO MOSAIC; FRAMES 9–21
1 M
J.A.83

Construction Traits

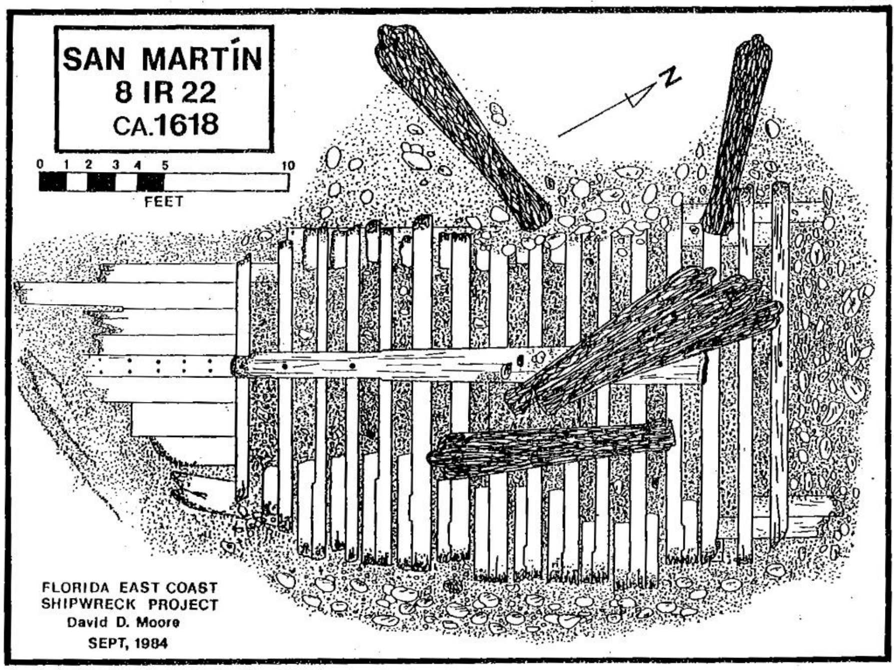
Maststep – Expanded keelson
Floor/futtock connection – angle butt joints, treenailed?
Planking fasteners – Both
Caulking – ?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits

Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes –

Green Cabin


SAN MARTÍN
8 IR 22
CA.1618
0 1 2 3 4 5 10
FEET
N
FLORIDA EAST COAST
SHIPWRECK PROJECT
David D. Moore
SEPT, 1984

(David D. Moore, Treasure Salvors, Inc. © 1984)

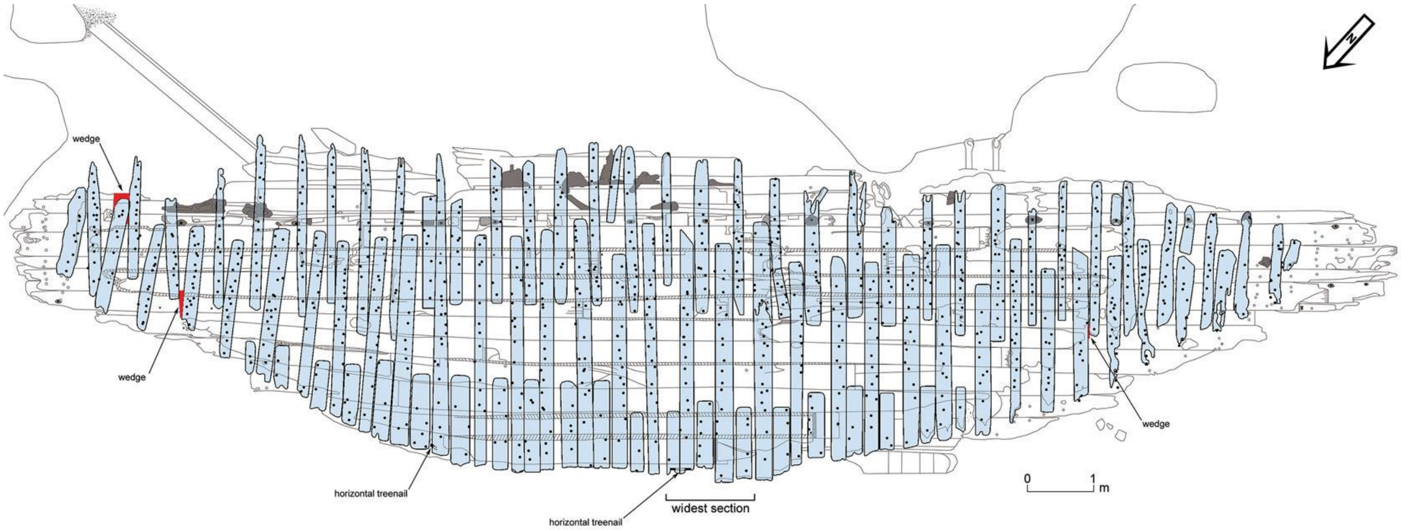
Fundamentals
Chronology: 1618
Place built – Spain ?
Place lost –
Preserved – ? x ? m
Length reconstructed – ? m; Beam reconstructed – 8.1 m
Keel length – 21.6 m
Keel section (s/m) – ? x ? cm
Frames section (s/m) – floors 19 x 19 cm
R&S – 42.5 cm
Plank thickness – 8 cm

Construction Traits
Maststep - ?
Floor/futtock connection – probably dovetail joints (More and Muir (1987) say ‘shear joints’)
Planking fasteners – Nails sq. and a single treenail driven through the middle of the plank.
Caulking – ‘Stealers fill the gaps between planks towards the ends of the vessel’
Sheathing – Lead sheathing over canvas.
Keel/sternpost connection – N/A

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes – Salvaged by treasure hunters

Warwick


N
wedge
wedge
wedge
horizontal treenail
horizontal treenail
widest section
0
1
m

Fundamentals

Chronology: 1619

Place built - England

Place lost –

Preserved – ? x ? m

Length reconstructed – 30 m; Beam reconstructed – 7 m

Keel length – 23 m

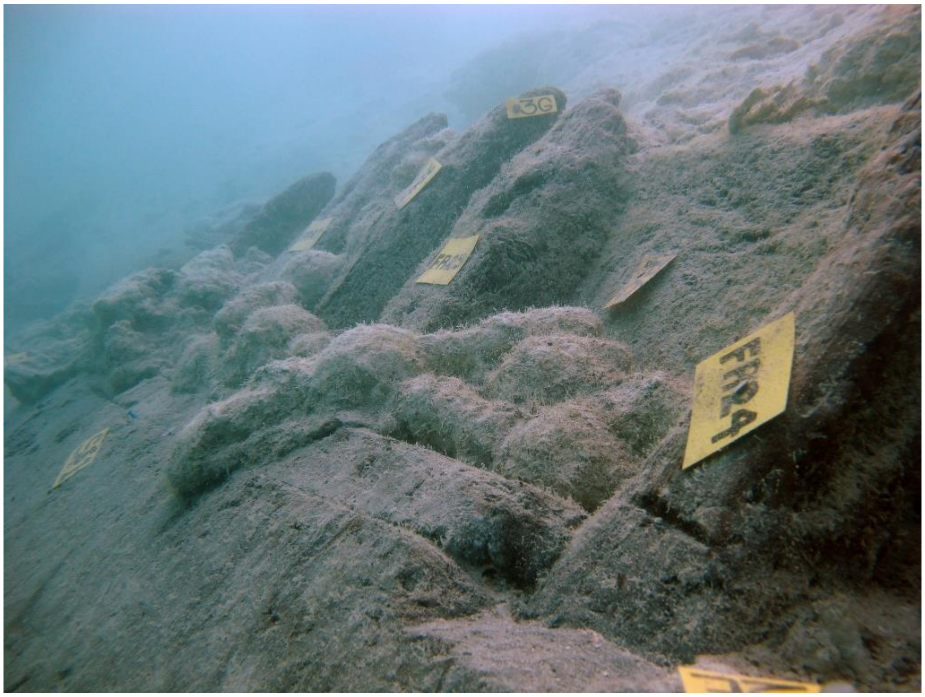
Keel section (s/m) – ? x ? cm

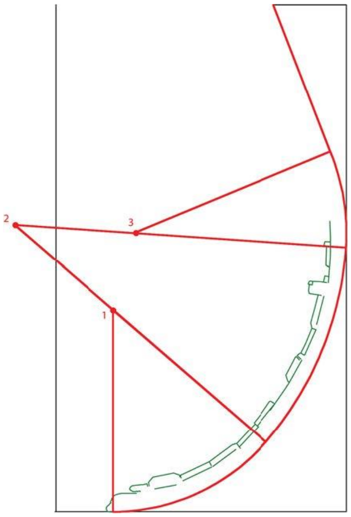
Floors section (s/m) – Floor timbers 25 x 22 cm

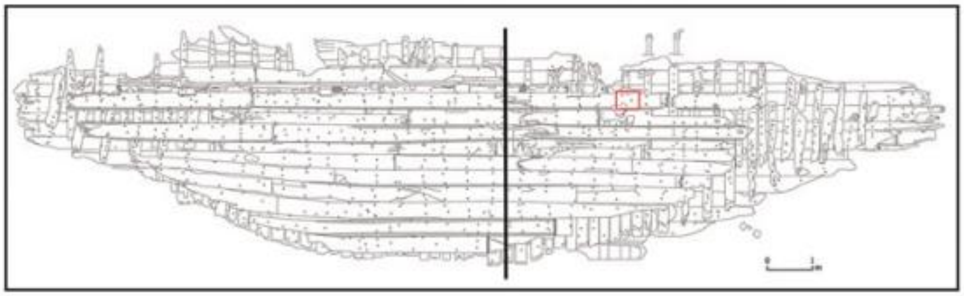
R&S – 54 cm

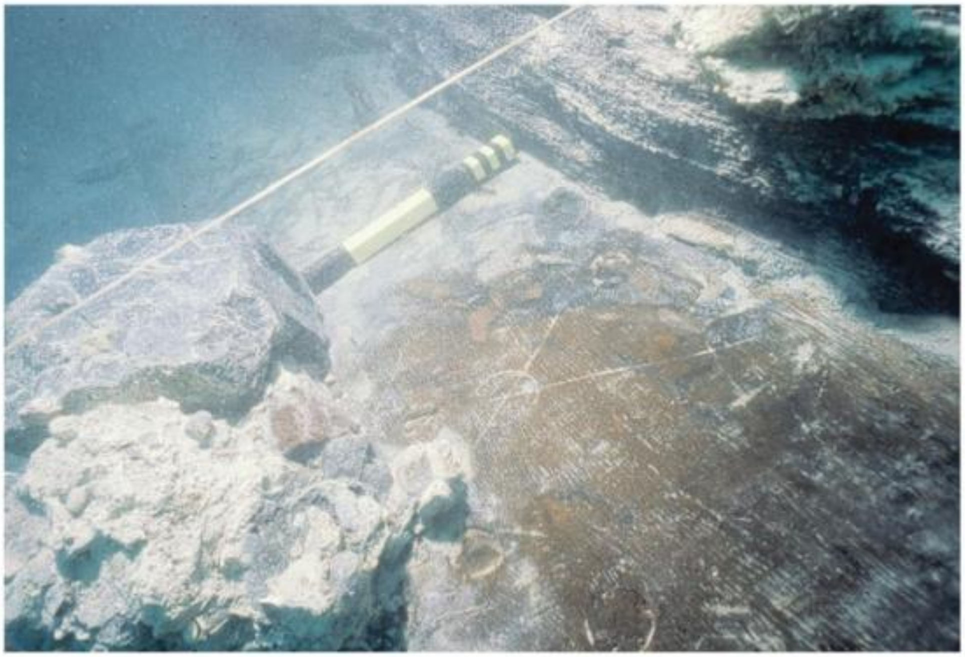
Plank thickness – ? cm

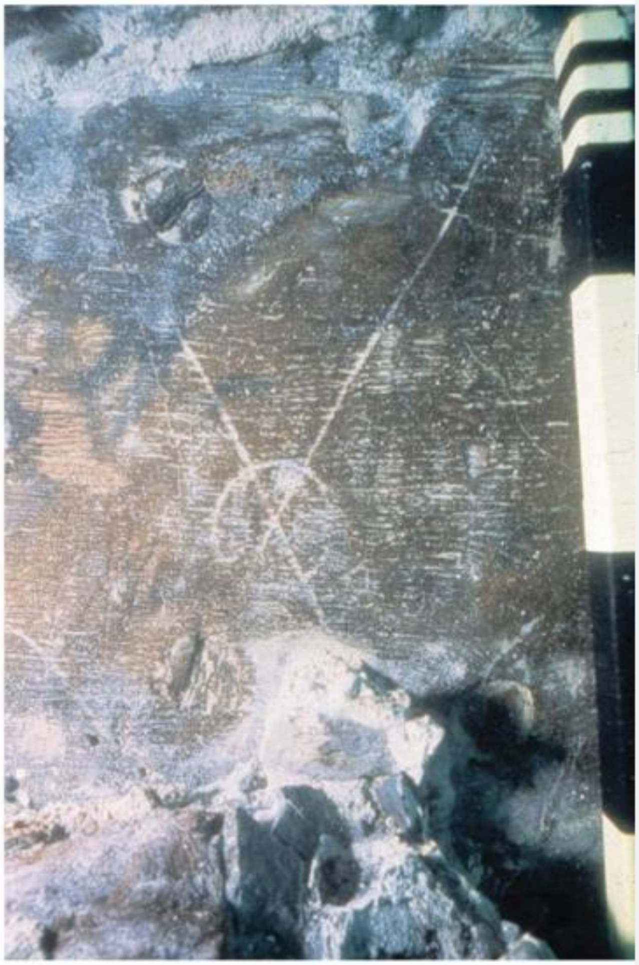
Incomplete









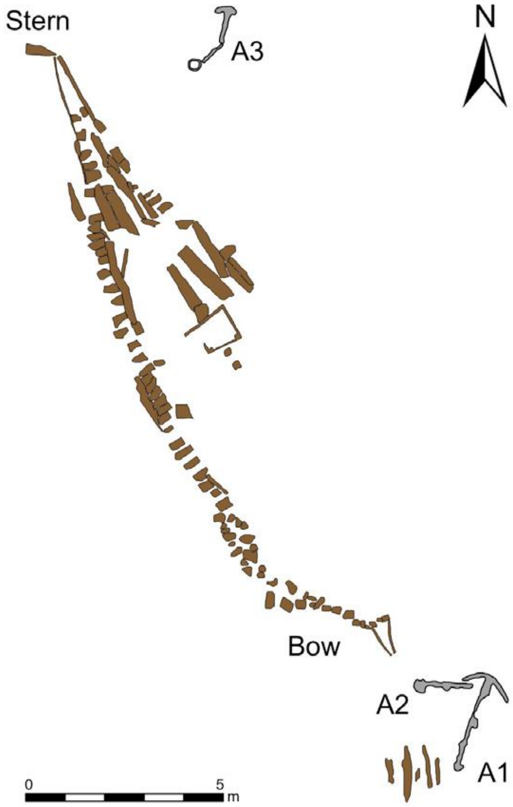


Construction Traits
Maststep – Mediterranean? Enlarged keelson?
Floor/futtock connection – Treenails, no scarves
Planking fasteners – Both
Caulking – pine tar and animal hair
Sheathing – full lead sheathing (lower hull)?
Keel/sternpost connection - ?

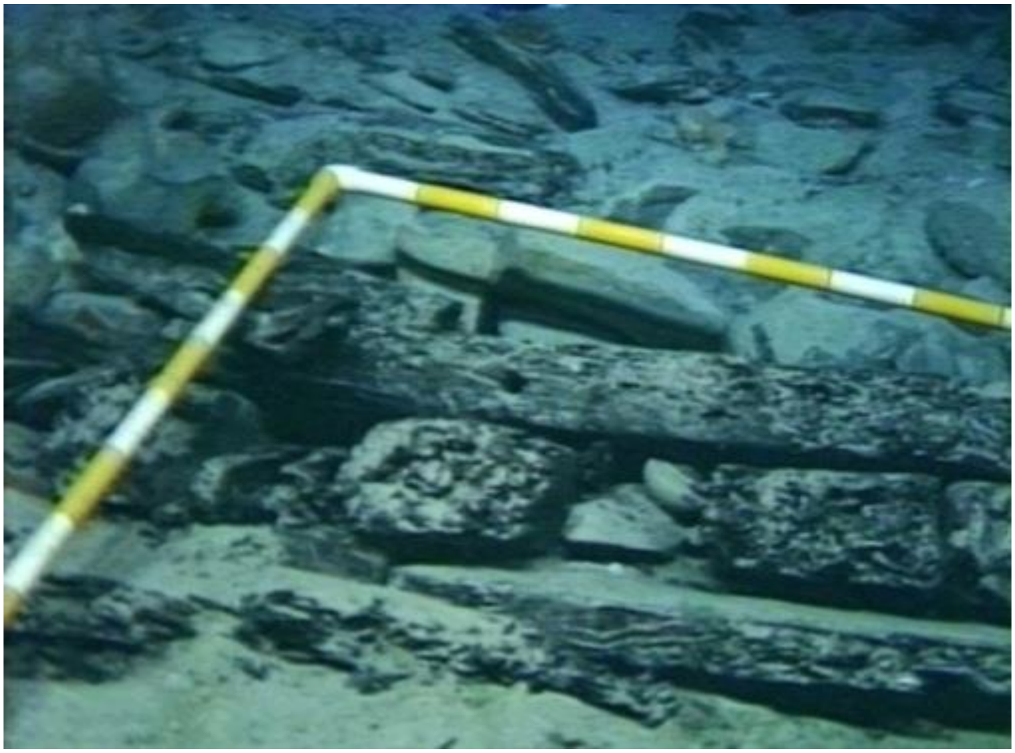
Design Traits
Hull shape – ?
Construction marks – Unidentifed markings present
Evidence for rising and narrowing –

Notes –

Dry Tortugas



Fundamentals
Chronology: 1622
Place built – Portugal ?
Place lost –
Preserved – 25 x 10 m
Length reconstructed – 21.3 m; Beam reconstructed – 6.3 m
Keel length – 17.25 m
Keel section (s/m) – 28 x ? cm
Frames section (s/m) – 17 x 12 cm
R&S – 37 cm
Plank thickness – 6 cm

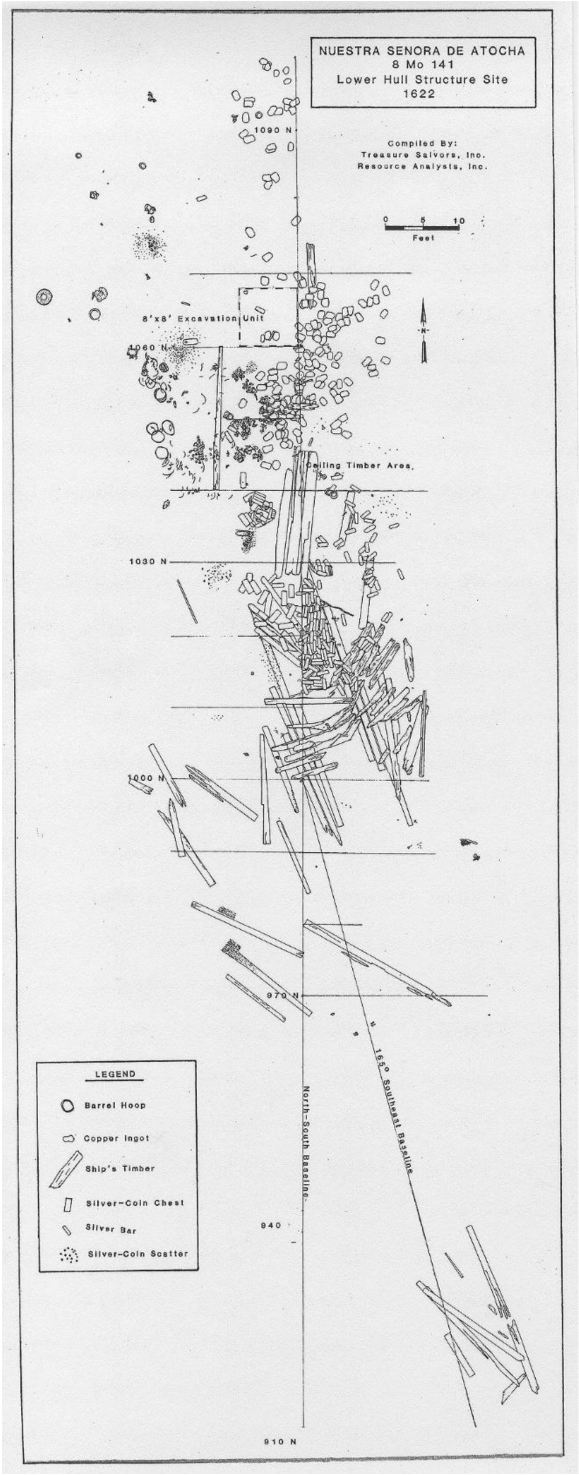


Construction Traits
Maststep – ?
Floor/futtock connection – ?
Planking fasteners – ?
Caulking – ?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes – Salvaged by treasure hunters.

Nuestra Señora de Atocha


NUESTRA SENORA DE ATOCHA
8 Mo 141
Lower Hull Structure Site
1622
Compiled By:
Treasure Salvors, Inc.
Resource Analysts, Inc.
0 5 10
Feet
N
1090 N
8'x8' Excavation Unit
1060 N
Ceiling Timber Area
1030 N
1000 N
970 N
940
910 N
North–South Baseline
165° Southeast Baseline
LEGEND
Barrel Hoop
Copper Ingot
Ship's Timber
Silver-Coin Chest
Silver Bar
Silver-Coin Scatter

Fundamentals
Chronology: 16xx-1622
Place built – Havana
Place lost – Florida
Preserved –
Length reconstructed – ? m;
Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –

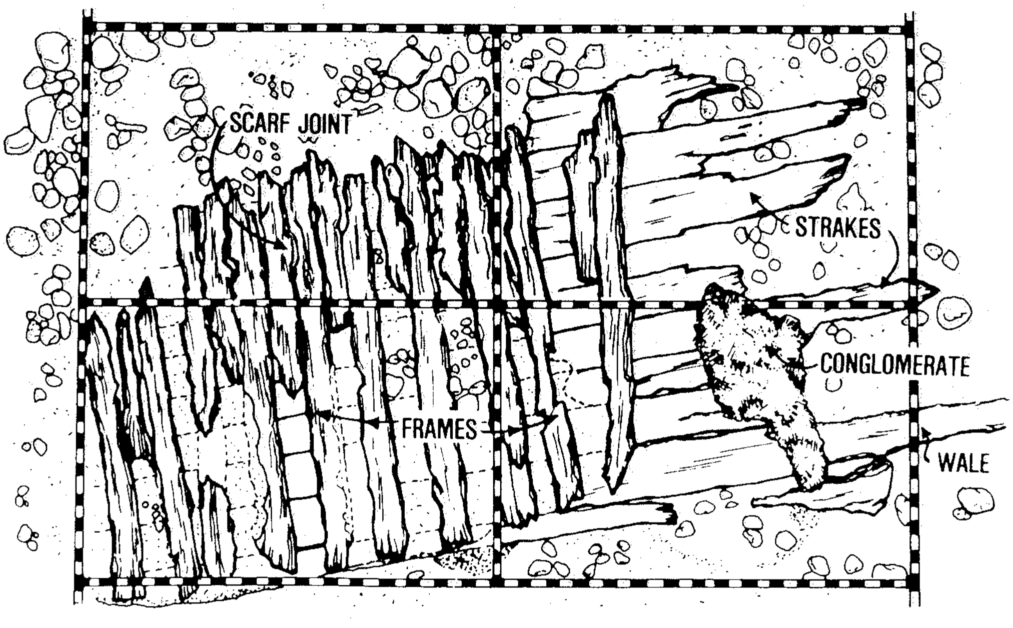
Construction Traits
Maststep – N/A.
Floor/futtock connection – .
Planking fasteners – .
Caulking – N/A.
Sheathing – N/A.
Keel/sternpost connection – N/A.

Design Traits
Hull shape – round.
Construction marks –
Evidence for rising and narrowing –

Notes –

Ref:

Santa Margarita


SCARF JOINT
STRAKES
CONGLOMERATE
FRAMES
WALE

Fundamentals

Chronology: 16xx-1622
Place built –
Place lost – Florida
Preserved –
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) –
Keelson –
Floors section (s/m) –
R&S –
Plank thickness –

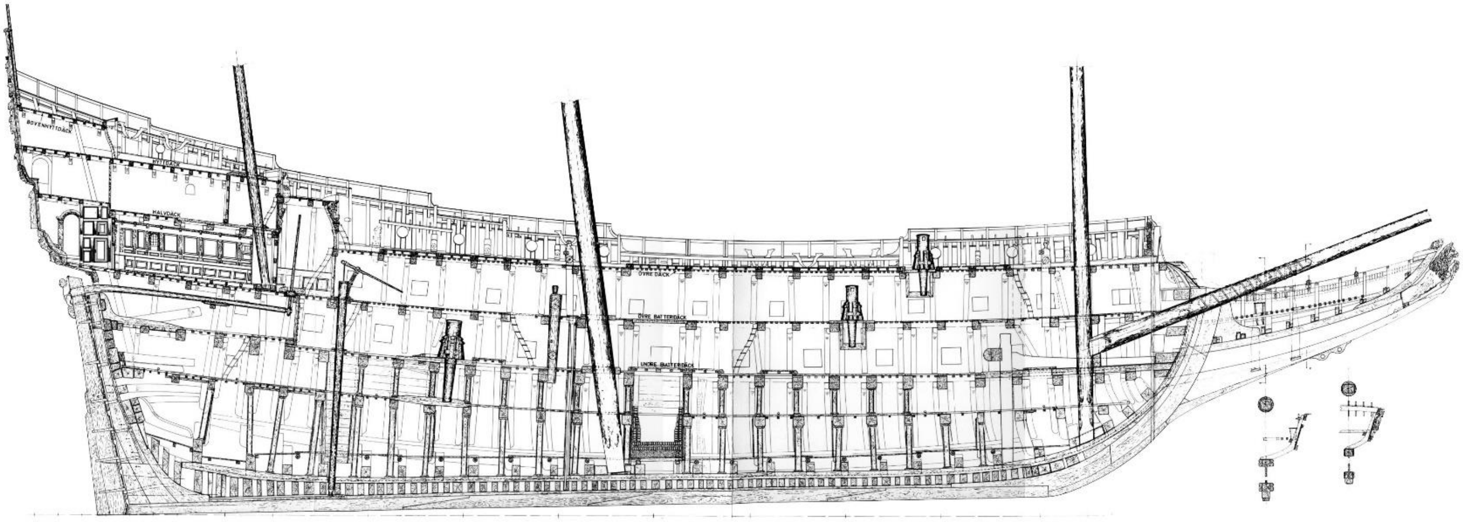
Construction Traits
Maststep – N/A.
Floor/futtock connection – .
Planking fasteners – .
Caulking – N/A.
Sheathing – N/A.
Keel/sternpost connection – N/A.

Design Traits
Hull shape – round.
Construction marks –
Evidence for rising and narrowing –

Notes –

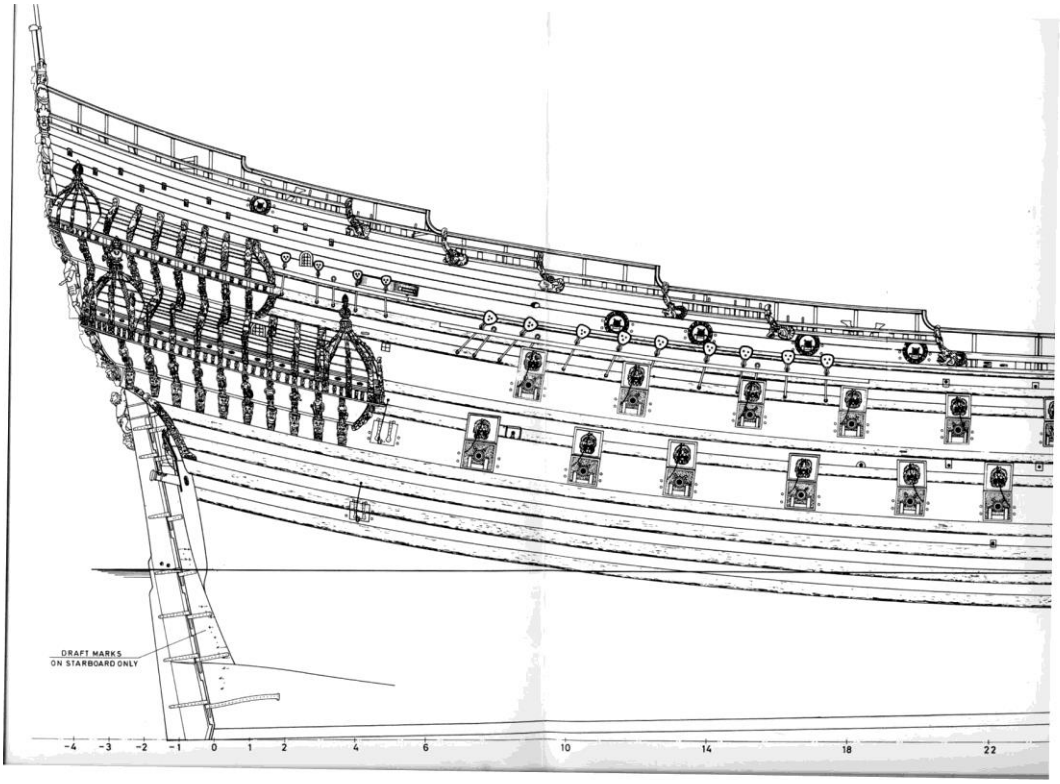
Ref:

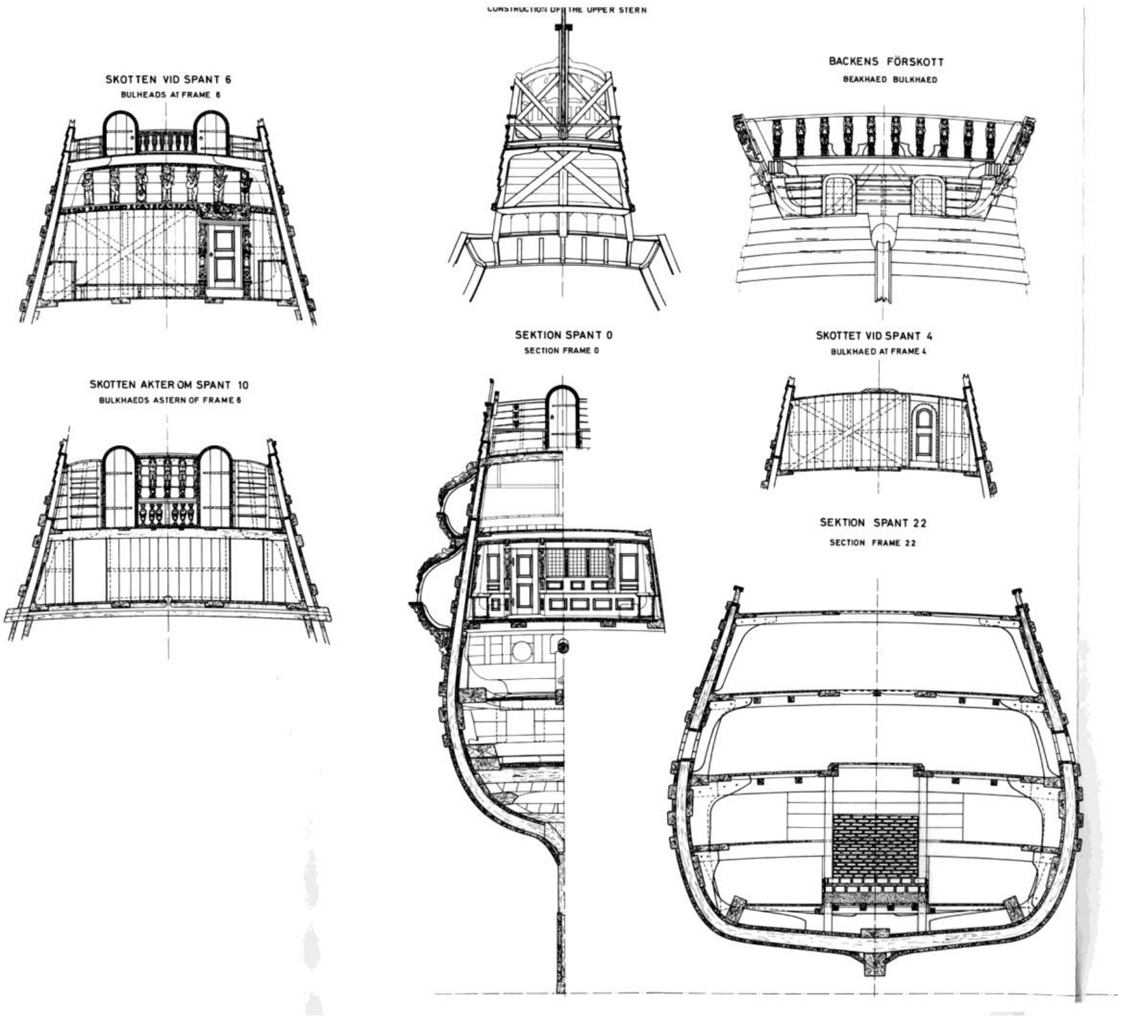
Vasa


BOVENHYTTDÄCK
HYTTDÄCK
HALVDÄCK
ÖVRE DÄCK
ÖVRE BATTERIDÄCK
UNDRE BATTERIDÄCK

Fundamentals
Chronology: 1628
Place built – Sweden
Place lost –
Preserved – ? x ? m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ?
Keel section (s/m) – ? x ? cm
Floors section (s/m) – ? x ? cm
R&S – ? cm
Plank thickness – ? cm

Incomplete


DRAFT MARKS
ON STARBOARD ONLY
-4
-3
-2
-1
0
1
2
4
6
10
14
18
22

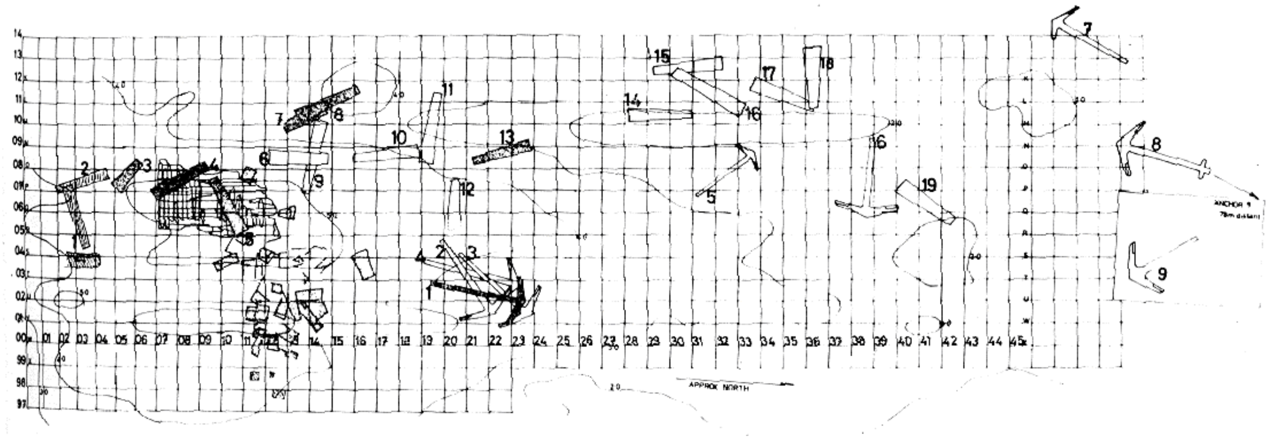

CONSTRUCTION OF THE UPPER STERN
SKOTTEN VID SPANT 6
BULHEADS AT FRAME 6
BACKENS FÖRSKOTT
BEAKHAED BULKHAED
SEKTION SPANT 0
SECTION FRAME 0
SKOTTET VID SPANT 4
BULKHAED AT FRAME 4
SKOTTEN AKTER OM SPANT 10
BULKHAEDS ASTERN OF FRAME 6
SEKTION SPANT 22
SECTION FRAME 22

Construction Traits
Maststep – Mediterranean ? Enlarged Keelson ?
Floor/futtock connection – ?
Planking fasteners – ?
Caulking – ?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes –

Batavia


APPROX NORTH
ANCHOR 9 75m distant

Fundamentals

Chronology: 1629

Place built – Netherlands

Place lost –

Incomplete

Preserved – ? x ? m

Preserved – x m

Length reconstructed – ? m; Beam reconstructed – ? m

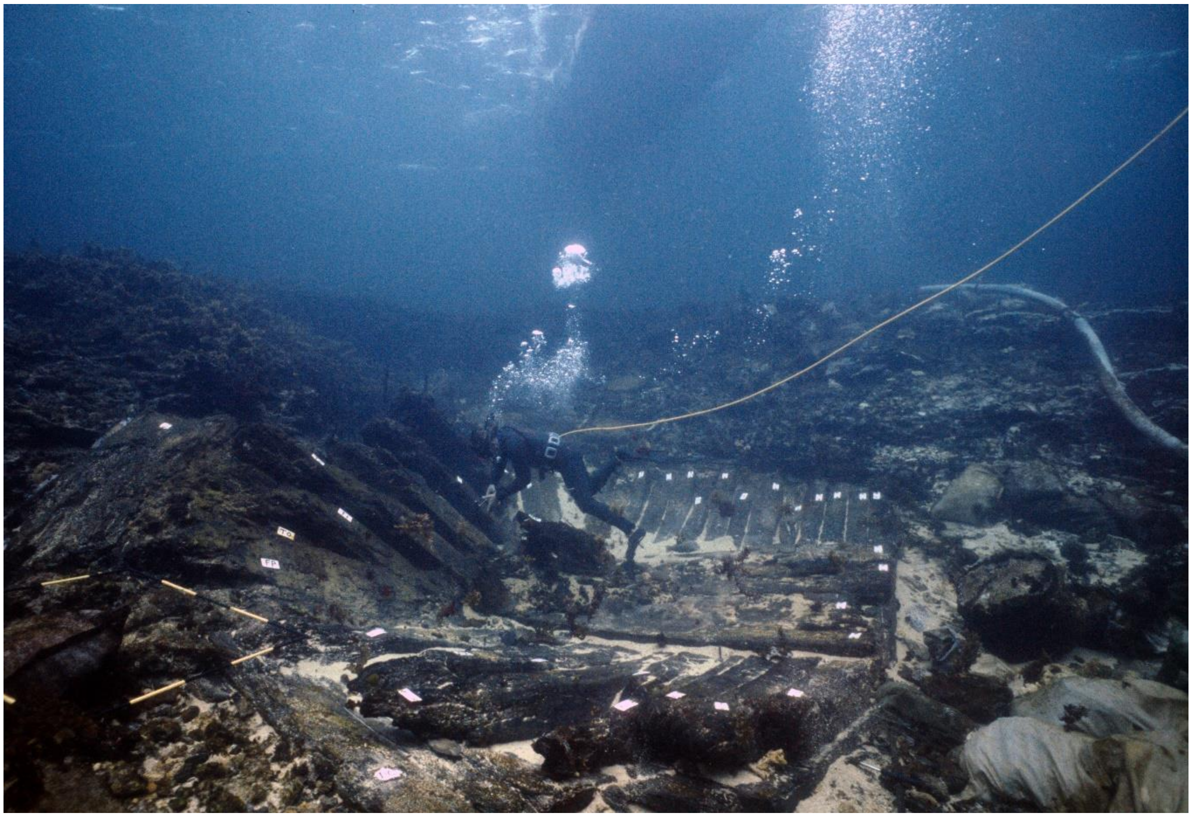
Keel length – ?

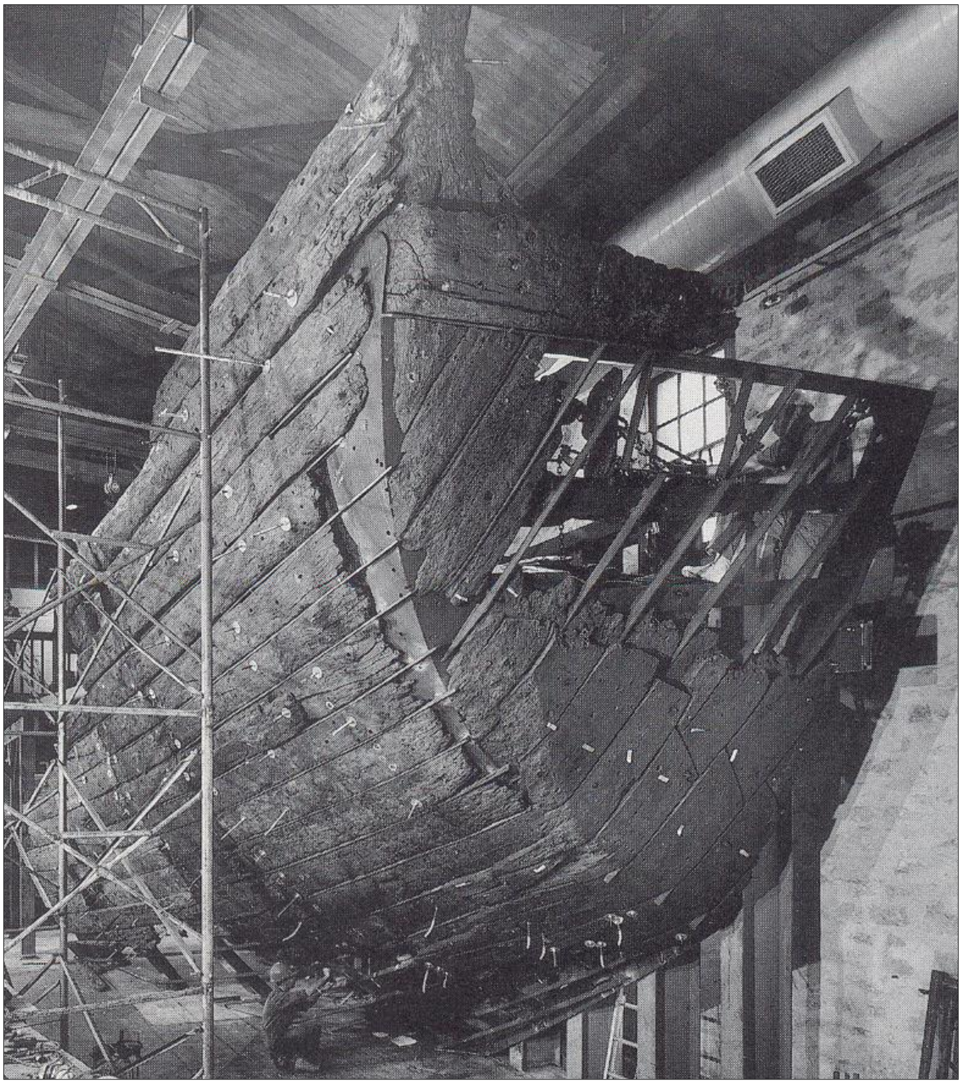
Keel section (s/m) – ? x ? cm

Floors section (s/m) – ? x ? cm

R&S – ? cm

Plank thickness – ? cm





Construction Traits

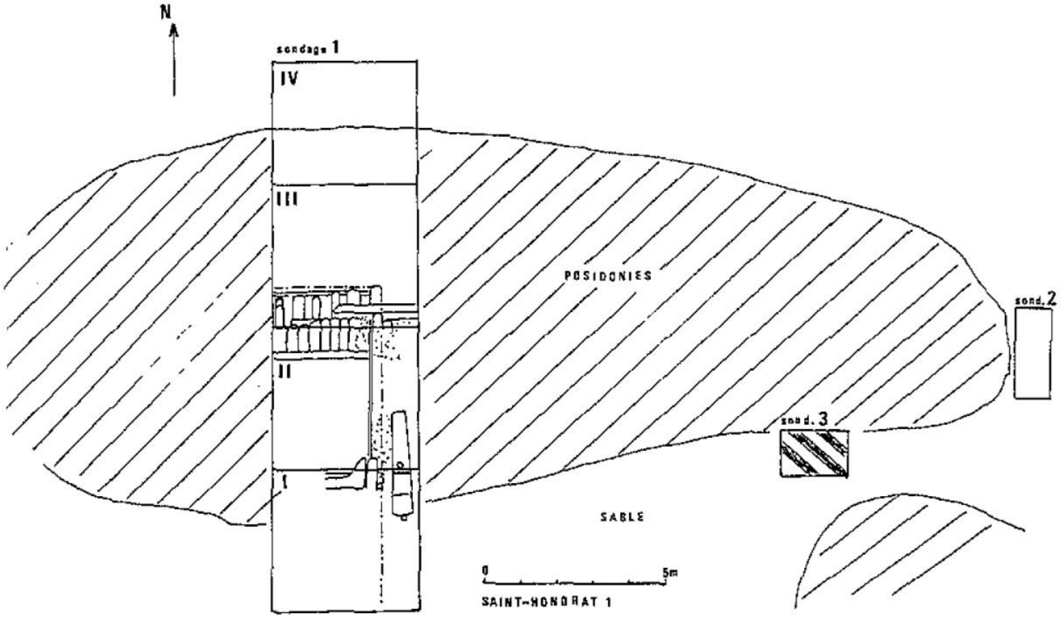
Maststep – Mediterranean ? Enlarged Keelson ?
Floor/futtock connection – ?
Planking fasteners – ?
Caulking – ?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits

Hull shape – ?
Construction marks –
Evidence for rising and narrowing –

Notes –

Saint Honorat 1


N
sondage 1
IV
III
II
I
POSIDONIES
sond. 2
sond. 3
SABLE
0
5m
SAINT-HONORAT 1

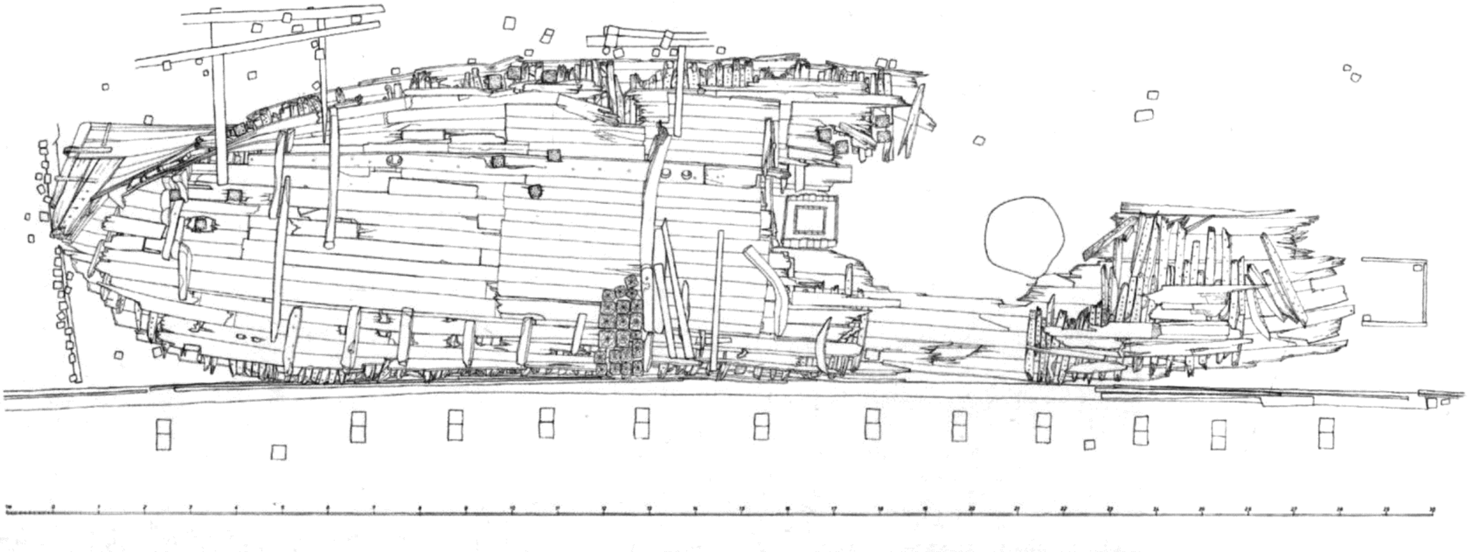
Fundamentals
Chronology: 1637
Place built – Naples?
Place lost –
Preserved – ? x ? m
Length reconstructed – ? m; Beam reconstructed – ? m
Keel length – ? m
Keel section (s/m) – ? x ? cm
Frames section (s/m) – 25 x 25 cm
R&S – 50 cm
Plank thickness – 10 cm

Construction Traits
Maststep – Mediterranean? Enlarged keelson?
Floor/futtock connection – ?
Planking fasteners – ?
Caulking –?
Sheathing – ?
Keel/sternpost connection - ?

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

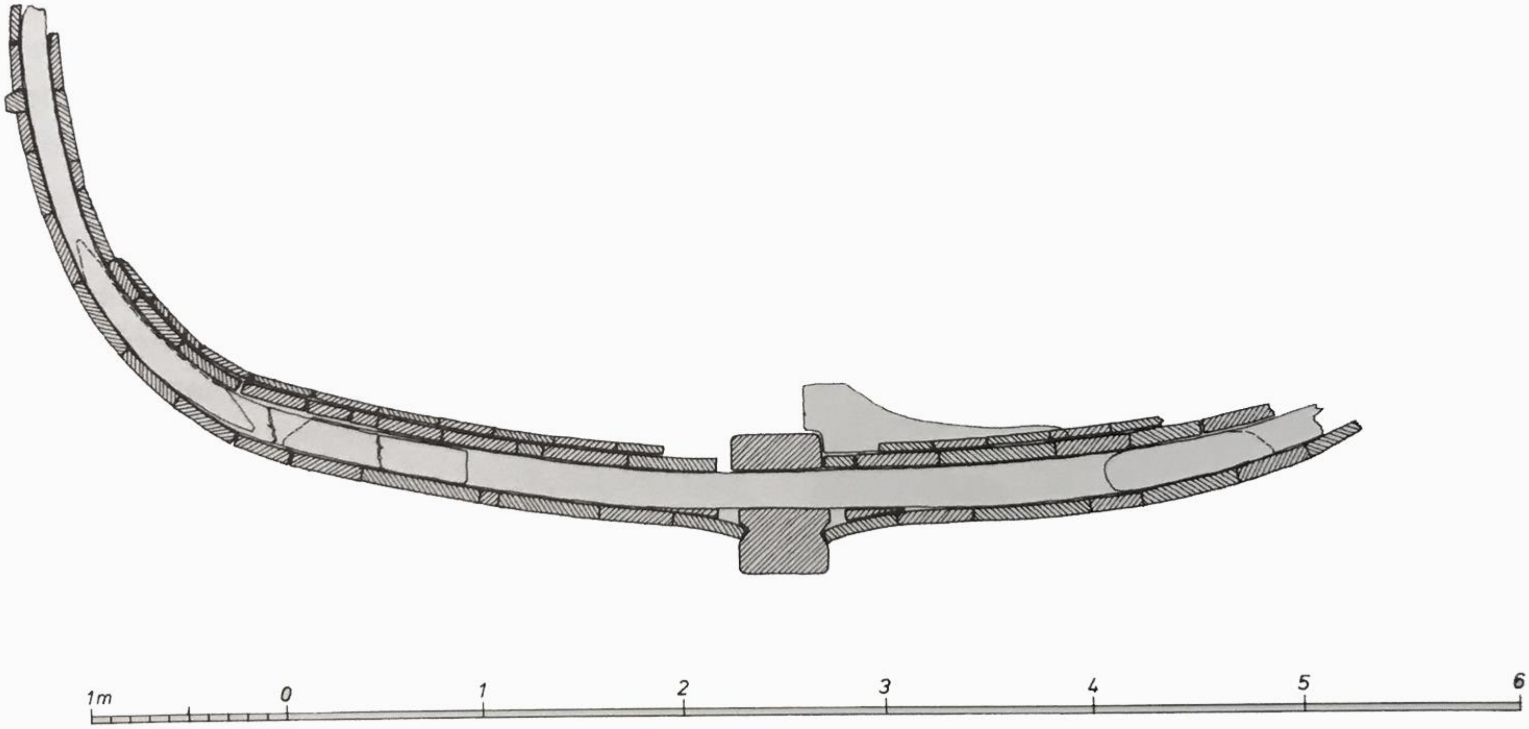
Notes –

B&W 5



Incomplete

Fundamentals
Chronology: Build 1644 Lost: 1740-1750
Place built: Holland
Place lost –
Preserved: 28 x 8 m
Length reconstructed –35 m; Beam reconstructed – 8.5 m
Keel length – 27.2 m
Keel section (s/m) – 46 x 31 cm
Floors section (s/m) –18 x 18 cm
R&S – 38 cm
Plank thickness – 5.5 - 7.5 cm



Construction Traits
Maststep – Not preserved
Floor/futtock connection – ?
Planking fasteners – Treenails and (iron nails or square shanks?)
Caulking – iron strips
Sheathing – ?
Keel/sternpost connection: Post rested on upper surface of keel.

Design Traits
Hull shape – ?
Construction marks –
Evidence for rising and narrowing -

Notes – oak

Refs:
Lemée, C., 2006. The Renaissance Shipwrecks from Chrstianshavn. Ships and Boats of the North, Volume 6. Roskilde: The Viking Ship Museum.

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CEAN
Centre d’Etudes en
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GROPLAN
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